

AN ORIGINAL

35:



329 K

SUPERSONIC FIGHTERS . . . MANNED EARTH SATELLITES
STORIES OF THE AIR FORCE ON THE FRONTIERS OF SPACE

AIR FORCE!

FRANK HARVEY
author of JET



BALLANTINE BOOKS

From the frontiers of space . . .

These are the men who fly the supersonic jets, who control the launching of the giant intercontinental missiles and the space-probing satellites, who even now are preparing to send a human pilot 100 miles into space to orbit the Earth.

Moon Shot—On the brink of one of history's most fateful moments, something went terribly wrong. . . .

Destruct Button—It's bad enough pushing a destruct button on two million dollars' worth of Atlas missile. And now there was something even more precious in the nose cone—a living human being!

100 Miles Up—An unforgettable story of a man who conquered space—and couldn't find the way back.

In these stories a top-ranking aviation writer brings you with eye-witness immediacy the most exciting moments of man's breathtaking leap into the realm of space.

by Frank Harvey

JET

AIB FOECEI

This is an original publication—not a reprint—by

Ballantine Books, Inc.

Air Force!

Stories by

Frank Harvey

BALLANTINE BOOKS * NEW YORK

Copyright © 1959, by Frank Harvey

test jump; panic on rionway 6, © 1956 by Curtis Publishing Co., first appeared in *Saturday Evening Post*.

moon shot; orbit flight, © 1958 by Curtis Publishing Co., first appeared in *Saturday Evening Post*.

runaway prop, © 1959 by Curtis Publishing Co., first appeared in *Saturday Evening Post*.

jinx jet, © 1957 by Fawcett Publications, Inc., first appeared in *Cavalier*.

100 miles up, © 1958 by Popular Publications, Inc., first appeared in *Argosy*.

destruct button, © 1959 by Popular Publications, Inc., first appeared in *Argosy*.

Printed in the United States of America

Ballantlne Books, Inc.
101 Fifth Avenue, New York 3, New York

Contents

Orbit Flight

Panic on Runway 6

Test Jump

Runaway Prop

Jinx Jet

100 Miles Up

Moon Shot

Destruct Button

Orbit Flight

They called it. the Torture Chamber. It was a squat, concrete building set down in the midst of the sun-bleached wind-raddled buildings on old South Base at Edwards Flight Test Center, in California. Actually, old South Base had been officially abandoned for years. Australian pines blocked the sidewalks with their furry branches; sand drifted in the streets; and the officers' club, where Chuck Yeager, Bill Bridgeman, Pete Everest and Ivan Kincheloe had celebrated their historic triumphs over speed and altitude, was dark and coming apart in the weather. Everything really important had been moved across the 15,000-foot runway to the glittering new complex known as North Base.

Everything, that is, except the Torture Chamber and the hangar which concealed, under twenty-four-hour armed guard, the three North American X-15B rocket planes. They were stub-winged monsters which resembled very heavy, bulky fighters. The cockpit of each was like a steel pillbox with a narrow observation slit. Their tails were shaped like meat-cleaver wedges for slicing air at better than 10,000 miles an hour. Each copy had cost \$80,000,000 and one of them, it was hoped, would circle the earth with a man in it after being fired by giant booster rockets.

It was February. Six weeks ago, a quiet invitation had gone out to certain unusually well-qualified pilots, Air Force-wide, to come to Edwards to compete for the earth-orbit mission, which was code-named Great Circle. Only two men, of course, were needed: the first pilot and his backup. Fifty men had appeared. Now only five were left: Jones, Hix, Bartholemew, Collins and Diondi. The Torture Chamber and the "outdoor games," as the officers called the progressively more strenuous physical tests, had eliminated the rest.

Colonel Richard Laning, the project officer for Great Circle, now stood before them. He was a small man with brown curly hair who always seemed to be smiling. But they had learned, over the weeks, that this boyish-looking colonel could stand by and watch terrible things happen, without losing his bright squint. Those brown eyes missed very little.

"Now then, gentlemen," Laning said pleasantly, "this morning the tests get rough. We are down to five men and we don't want to prolong it. However, since there will really be personal danger, I'm giving any of you a chance to resign. You've got two minutes—from right now—to decide. In or out." Laning lifted his arm and glanced at his wrist watch. "Here comes the hack. Ready. Now."

Colonel Jones felt the hair prickle on his scalp. This sudden shock treatment was typical of Laning. No warning. Nice big smile. Two minutes. In or out.

How rough can we get? -Jones thought. Last weekend Laning had given them a short briefing on how to use a diving lung—then popped them into a tankful of water and slammed the lid shut. "You'll be fairly isolated in the X-15B out in space," he'd said. "This little tank of water should weed out the boys who don't like to be alone."

Colonel Jones stopped himself from licking his lips. Colonel Laning caught little details like that and filed them away on that photographic plate he used for a brain. Jones glanced at the other officers. There was Colonel Hugh Collins, pale-eyed, cold as ice. Collins had written the book on Space Medicine: boiling blood, exploding tissue, weightlessness, ultraviolet burns. But he was no desk-bound researcher. Last summer he'd bailed out of a balloon at 78,000 feet and fallen ten miles, making personal observations, before pulling the string. Jones didn't expect any cracks to appear in Collins, not even hair-line type.

Beyond Collins was Major Harold Bartholemew, a banty rooster of a man with a battered fighter's face, scarred white from ancient encounters with Korean MIGs. Jones detested Bartholemew. Maybe it was because they were both fighter pilots. No fighter pilot worth his salt believes there is a man living who can whip him—and it shows.

Major Hix, next in line to Bartholemew, was the one Jones liked best. Hix had missed his footing on the four-inch catwalk they'd had to cross fifty feet in the air, and had fallen heavily in the safety net on his neck and head. He'd been out cold for several minutes. But when he revived, he climbed the tower and tried again—and this time he made it. Hix had got a high mark on that one, even from hard-boiled little Laning.

Last in line was a slim, dark-haired captain named Al Dioni, the only man in the group with rocket time. He'd flown the evaluation tests on the "space controls" which would be used in the X-15B. These controls had been installed in an old Bell X-1 rocket plane and Dioni had gone to 80,000 feet, where the air was very thin. He'd rolled, climbed, dived, turned. Not with conventional ailerons, elevators and rudder—the controls used in air. But with tiny highpowered jets of steam—stabbing briefly from the wing tips and nose section.

Laning checked his watch and looked at them brightly. "Well, gentlemen—I'm accepting resignations now. Anybody for out?"

None of them moved or spoke.

"Good," Laning said. "We'll get on with it. One man at a time. No second chances. Colonel Collins, if you please, sir."

Collins rose and followed Laning into a passage which led to the Hot Room, a gruesome place fitted with a battery of infrared lamps strong enough to melt brass. They'd all had a dose of the Hot Room, wearing MC-2 pressure suits which were aluminized to reflect heat and cooled by air ducts next the

body. Laning had given them 400 degrees Fahrenheit, and demonstrated it by tossing a crumpled newspaper on their laps. Within a few seconds, the newspaper grew brown, then burst into flame. None of them felt any heat to speak of, or were bothered by the demonstration—except Hix. Hix had gone rigid when the newspaper flared up in his lap and shut his eyes against the fire.

Now, as they waited, Major Hix said, "You don't suppose old buddy is in there frying Collins alive?"

Jones looked at Hix. Hix was smiling, but there was sweat on his face in the air-conditioned room, and his eyes were queer. "Speed I don't mind," Hix said. "Falling on my head I don't mind. But fire"

"Why fire?" Diondi said. "You're just as dead, in the end, no matter which ticket you were holding."

Hix unbuttoned his cuff and pulled up his sleeve. The forearm was a glossy mass of scar tissue. "We were kids," Hix said. "It was one of those crazy Indian games. They tied me up and started this fire"

"If you're scared of fire," Bartholemew said, "you better quit now. They tell me this X-15B gets red-hot when she comes back into the air from outer space."

Hix's red face tightened. He started to speak, but stopped himself at the sound of footsteps. In a moment Laning reappeared, and behind him, cool and self-possessed, walked Colonel Collins.

"Next," Laning said. "Captain Diondi, please."

Diondi rose and followed Collins into the passageway. Jones felt let down. He'd been tense for something truly ferocious. And then Collins had returned as unruffled as if he'd been at a tea party. Four minutes passed. Jones was almost beginning to be bored when the screaming began. It was hoarse, horrible, like an animal in agony—and it went on and on, and then, quite suddenly, it stopped.

Hix started to his feet. Then he sat down. They waited. In several minutes Laning came out, alone. They stared at him. Up to now they'd respected and disliked him. Now it was different. Now there was hate in the room. Hix said, in a low voice, "Where's Diondi, colonel?"

"He's all right," Laning said. "But—he wanted to leave by another exit." Laning smiled slightly. "I suppose that's understandable. Hix—next, please."

Hix was on his feet. His red face was working, but for a moment he could not speak. Then he said, violently, "What are you trying to pull here, Lanirig? Some little personal torture kick?"

"Pardon?"

"Don't be coy. You're not fooling anyone. It's obvious you gave Diondi a different test than Collins. You play it by ear. One routine for colonels. One for captains"

"That's enough!"

"You bet it's enough. I'm pulling out of this rat race right now. And if these other officers have any sense, they'll join me." Hix turned and ran out.

Colonel Laning said, "All right, Colonel Jones. Next."

Jones rose and followed the colonel into the Hot Room. In addition to heat lamps, there was a mock-up of the X-15B cockpit in one corner. Laning said, "Climb in, Colonel Jones. Buckle down as you would for a rocket-boosted lift-off."

Jones climbed into the contoured seat, his legs quivering, and tightened the straps. He was familiar with every detail of the cockpit. He had taken the trouble to come in after hours and practice in it until he could locate any item instantly—with his eyes shut.

"You know the cockpit well?" Colonel Laning asked, standing outside.

"Yes, sir."

"Do you know the emergency procedures?"

"Yes, sir."

"Good," Laning said. "Then you'll know how to handle this one."

He brought the hand grenade up from under the sillj where he'd held it out of sight, pulled the pin which triggered the high explosive—and placed the live grenade on the flight console eighteen inches from Colonel Jones' tightly strapped body. Then Laning whirled and ran.

For an instant Jones panicked. A scream of terror bulged in his throat and he wrenched his face frantically away from the grenade. The straps held him inexorably —and his training took over. He reached forward with his left hand, picked up the grenade and shoved it into the disposal port on the left side of the cockpit. It thumped on the floor of the Hot Room. He squeezed his eyes tight shut and shoved his head down on his chest, tense for the blast. It didn't come. Footsteps did. Laning peered into the cockpit. He was holding the dummy grenade, replacing the pin, and grinning. "Nasty bit, eh?"

Jones didn't reply. He was having trouble with his breathing.

"O.K.," Laning said. "We'll see how Major Barthole-mew does. Unless I'm badly mistaken, he'll have no trouble."

Colonel Laning was not mistaken. Jones timed Bar-tholemew. The little guy came strutting out of the chamber, grinning, before four minutes were up.

"We'll break for lunch now," Laning said. "Be back by one o'clock. And one little tip. Go light on the food." Laning grinned. "Or at least eat something which won't scratch coming up."

Christine Jones was slicing an egg when her husband parked beside the house they'd been assigned for the duration of the test, on a knoll overlooking the dry lake. Christine Jones was a little girl, on the thin side, with bright blue eyes and short brown hair. She was merely pretty until she smiled. Then she made you feel good, just looking at her. The smile was a nose-wrinkling, white-toothed glow, like a light being turned on in a dark room. "Hi, hon," she said. "I'm a little late with the food. Be ready in a minute."

"No food." George said. "Just a milkshake. Things got down to the short strokes this morning. Two men were eliminated."

"Who?"

"Hix and Diondi. Hix really flipped. It seems the poor guy had a bad burn when he was a kid—and never got over being scared of fire. He thought Laning was going to fry him alive in the Hot Room, I guess."

"Your, little colonel," Christine said, "is probably the most horrible man I've ever known. I'm sorry about Major Hix—but I'm really surprised at Captain Diondi. Wasn't he the one who had all that experience in rocket planes?"

Jones smiled grimly. "Yep. Didn't help him much this morning. The guy almost shoved a hole in the console—pushing the panic button."

Christine Jones did not ask the nature of the tests which had eliminated the other pilots. She did not want to know. She looked at her husband. He was no pretty boy. He had freckles and his light skin was always peeling from fresh sunburn and when he got a haircut the barber always seemed to shave the sides naked and leave a red thatch on top, which made him look like a hick. Christine knew this man was no hick. She knew how tough and quick his body was, and how tough and quick his mind was. He'd knocked down eight MIGs in Korea. The Japanese had a word for men like George: *honcho*, boss man.

She put the milk in front of him, rich and foamy from the mixer. She had a feeling, which had been growing steadily for weeks, that if somebody sneaked up behind her and yelled, she'd fly into a million pieces. She thought, *I hate those metal beasts they've got chained down there in the desert. They'll let them loose, sooner or later, and when they do, somebody'll get killed.*

Colonel Laning got right to the point when he picked the three officers up in the staff car at one o'clock. "We'll be using the Highspeed Rocket Acceleration Track for the next test," he said. "So I'm going to save time by briefing you as we drive over. You'll be subjected to heavy G loads when the final stage of the X-15B boosters is fired. And you'll have to fire that last stage manually—yourselves. So we have to find out if you can take it."

Jones caught a glimpse of Bartholemew's face, beside him in the back seat. Bart was grinning. He wasn't scared of big acceleration forces. His tough lithe body was made to order for a rugged rocket ride.

"All of you will wear the MC-2 pressure suit," Laning went on. "The face plate will be closed. There will be a doctor on duty at the down-range end of the track, just in case. Colonel Stapp was blinded for a while after his sled ride. All he could see was a blood-colored mist."

Jones felt his stomach get sick and tight. Every man had his own private thumbscrew. With Jones it was blindness. He'd rather be dead—dead twenty times—than blind.

The rocket track was forty miles from Edwards—a die-straight ribbon of steel that lost itself in the heat shimmer of the desert. The sled was a framework of tubing, driven by solid-fuel boosters. The rider sat on top like a

man on a small diving tower. When they arrived, Laning directed Major Bartholemew to put on the pressure suit, and supervised the strapping on the sled. Then they all went into the firing blockhouse.

"We're ready to fire," Laning said over the public-address system. "If you are prepared, Major Bartholemew, please signal by moving your right hand."

The gloved hand fluttered immediately.

"Very well. I'm starting the count. Five . . . four . . . three . . . two . . . one . . . fire!"

A pink sheet, full of blazing shock diamonds, jugged stiffly from the boosters; there was a shattering roar, a boil of dust, and the sled was gone. Very soon—almost immediately, it seemed to Jones—a voice came over the PA system. "Hello, Air Force pitcher. This is Air Force catcher. The sled is here. Deceleration normal. We'll have word on the test subject in a moment."

The dust settled. The desert was again visible. The PA system said, "Test subject has been unstrapped. The doctor is examining him. He—he's getting up alone—so I guess he's all right. Yes, he's all right. The doctor has just given us the thumbs up."

Colonel Hugh Collins was next. He put on the suit and helmet and waited for the sled to be returned and armed. While he was being strapped in, Collins showed no signs of nerves at all. The shot, this time, was exactly the same as it had been for Bartholemew: a stab of fire, an ear-splitting roar, and dust settling. The first down-range report came at once. The sled's deceleration was normal and the doctor was proceeding with his examination.

Several minutes passed. There was no further transmission from down range. Finally Colonel Laning picked up the mike. "Hello, Air Force catcher. This is Colonel Laning, project officer. What's the hold?"

For several moments there was no reply. Then a voice said, "This is Air Force catcher. The doctor is busy, Colonel Laning. He can't talk to you. But—well, it doesn't look too good, sir. The test subject has been blinded. All he can make out is a red fog."

"I'm on my way," Laning said curtly. "Tell the doctor to keep Colonel Collins flat on his back. And quiet! He may have detached retinas!"

"Yes, sir!"

When Laning was gone, Jones took out a cigarette and lighted it. He was now very frightened. He looked at the track. The light had changed from dazzling white to molten yellow. The ridges of the Mojave were bronze in the low light. High overhead were the crisscross contrails of test jets. It had never seemed more beautiful before. Jones shut his eyes. It was black. He opened them again—quickly.

"Blind," somebody said softly, beside him. "Blind. Oh, brother."

The man wasn't talking to anyone in particular. He didn't mean anything. But Jones wanted to turn and smash him in the face. In twenty minutes the sled was back. The crew rearmed it and waited. The sun went down and the desert was luminous in the afterglow. Finally the intercom hummed and

Laning's voice said, "Colonel Jones."

He picked up the mike. "Jones here."

"Jones—this is Laning. It looks as if Colonel Collins may be badly hurt. His right eye appears to be coming around nicely. But he's in severe pain and he can't see at all out of his left eye. It may be a detached retina. We can't be sure until we get him to the hospital." Laning paused. "Sled back yet?"

"Yes, sir."

"Rearmed?"

"Yes, sir."

"All right, Jones. Now get this. I'm not going to ask you to ride. Collins is out, of course. But Bartholemew made the run in good shape. So I've got him for first pilot—and you for backup—if you want to abort right now."

George Jones took a deep breath and let it out. He spoke, carefully and deliberately. "I'm not backup, colonel. And I'm not aborting. Now or at any other time." He laid the mike down.

Sixteen minutes later they unstrapped him and opened his face plate at the lower end of the track. He was bleeding from the nose and mouth and there were deep scalding pains across his chest and groin where the straps had snubbed him. But he could see. There was no red fog in front of his eyes. Merely a feeling of fullness and a blinding headache. He pushed the helping hands aside and stood up. *O.K., Bartholemew, he thought. It's you and me, now, boy. Just the two of us.*

Jinny, Colonel Hugh Collins' wife, brought news of the colonel that evening after supper. Jinny had been drinking, but she wasn't drunk. She was merely deliriously happy. The colonel's right eye was back to normal. It «^ was true that he'd had a permanent injury in the left. There would always be a slight fog over the vision of that eye. But it was nothing, Jinny said, nothing at all, compared to what might have happened if Hugh had stayed in the test.

"He's not staying in," Jinny said. "He's out. Colonel Laning said so himself, so it's official. What do **you** think of that?"

"It's obvious what you think of it," Christine Jones said. "You're so happy you can't stand it."

"Yes, I'm happy," Jinny said. "As these airplane drivers are so fond of saying—you read me loud and clear."

Christine was glad when Jinny Collins left. She didn't blame Jinny. But a slightly hysterical urge had been growing inside her to pick up Jinny's martini glass and throw the drink in her happy, relieved little face. Those metal beasts down in the desert wouldn't get Jinny's Hugh. Not now. Not ever.

The metal beasts were lined up inside their hangar in the morning when Colonel Laning took Jones and Bartholemew inside for a general briefing. He went over the most important items first. He explained that the windscreen was made of double panes of tempered glass—with coolant circulating between—and specially coated to keep out ultraviolet rays. He showed them

the small rocket tube which fired straight down out of the belly. This tube was extremely important. They would use it when they were a hundred miles high, and traveling 17,000 miles an hour. First they would rotate the rocket plane until its nose pointed straight out into the blackness of space—and its tail pointed toward the earth—and then they would fire the belly rocket against the direction of motion. The force would be very small. But it would be large enough to cause the X-15B to lose a little speed—to start a gradual descent from airless space into the air blanket. According to plan, the belly rocket would be fired passing Australia.

The descent into the air blanket, of course, was the most critical operation of all. It would be done with ut- >» most precision and delicacy. The rocket plane, actually, would skip along the top surface of the earth's atmosphere—like a stone on a millpond—until it lost enough speed to make a deep penetration for a landing.

"Re-entry is our biggest danger," Laning told them. "The bird will get red-hot. She'll glow like a poker. The nose and the leading edges of the wings may become white-hot. But the outer skin is special nickel alloy. It can take 1500 degrees Fahrenheit without softening or weakening. And the real hot spots are pure ceramic—good for 5000 degrees Fahrenheit if necessary. You'll be safe if you keep your eyes on your instruments and don't hit the panic button. Play it cool. Go by the gauges."

Bartholemew said, "Could I ask the sixty-four-dollar question, colonel?"

"What's that?"

"When do we fly it?"

Laning grinned. "As soon as you finish ground school."

"When do we know who gets the mission?"

"At the end of the course," Laning old.

Great, Jones thought. *Keep the blow-torch on our necks right up to the last second.* It wasn't impersonal now. It was a man-to-man battle, no quarter asked, none given.

The battle did not extend to the wives. Christine Jones and Betty Bartholemew were drawn together by loneliness, now that the other officers' wives had left the temporary quarters on the knoll. Betty had been a pilot in the WASPS in World War II, ferrying Mustang fighters from California to the East Coast. Bart had been a young fighter pilot on his way to Europe. "I delivered him one of those lovely little Mustangs," Betty said, "and he was so grateful, he married me." Which was just for laughs, of course, because Betty Bartholemew had been trim and cute as a button. Still was: snub nose, full red lips, and dancing eyes under her short gray bob. Christine Jones liked Betty, and trusted her.

When fear got too big, she shared it. "I guess I should have married a grocer," Christine said one day. "These big heroic missions—what do they prove? I'm not interested in having a dead hero's picture over the mantel. I'd rather have a live husband in front of it."

"Chris, honey," Betty said, "I'm not interested in dead heroes either, believe me. Bart's last duty was at Nellis Air Force Base, in Nevada—just across those mountains over there. He led the Crimson Sabres, the Air Force jet team which tours the country and puts on acrobatic shows. I went to every show. I was scared stiff. But that's how it is. There are all kinds of live husbands a girl might keep in front of her fireplace."

"Meaning?"

"Meaning a girl likes to have a man in the house— not just some good-natured fellow who buys the groceries. And if you have a man, you have to accept the kind of work a man does."

The ground training dragged on. It was not just a matter of knowing which button to push: they had to know why, in all the painstaking detail. Jones and Bartholemew lost weight and grew tense and edgy. A blow-off was bound to come. When it came, the reason—as is usual in such circumstances—was ridiculously trivial: a roller towel. Jones had dried his hands and neglected to pull the towel down. Bartholemew looked at it. His blunt-fingered hands, pink and wet, closed to fists. "What's the matter, colonel? Sprain your arm?"

Jones looked quickly from the mirror where he was combing his hair. "Pardon?"

"This towel you used, sir. It's soaked."

Jones put the comb gently into his pocket. "You want a word of advice, major? Take a light grip on the towel and give it a little jerk. You'll find it unrolls to a nice dry part. Clear, major?"

Bartholemew's black eyes glittered. When he spoke his voice was low, almost pleasant. "I've got a little deal for you, colonel. Nothing to do with towels. I know where we can get a couple of jet fighters. If the colonel would care to, I'd like to invite him to meet me at 40,000 feet over the lake—hot guns."

Jones smiled. It was a tigerish thing, the lips drawn tight across the teeth. "The colonel," he said softly, "would be delighted."

Colonel Laning had been standing in the doorway. Now he spoke, pleasant as usual, "I've got news for you two raunchy tigers. You'll meet over the lake. Tomorrow morning. No hot guns. Bartholemew will make the first drop test in the X-15B. Jones, you'll fly chase in a Lockheed F-104." Laning left the doorway, crossed the room and jerked the roller towel smartly downward. He turned to Bartholemew, smiling. "Allow me, major?"

A Boeing B-52 bomber had been converted to carry the X-15B to high altitude over, the dry lake and drop it. The first drops were without power. The plane glided down and landed. But gliding in the X-15B was like gliding in a rock. The stubby wings would not hold up the heavy metal body unless the speed was very great.

Both pilots made power-off drops. Then they took up fast jet fighters and flew "weightless parabolas." This was accomplished by pushing over the top of a screaming climb, like a roller coaster in the sky, and holding the stick

forward. The plane's centrifugal force exactly canceled out the pull of gravity, and the pilot floated up into his seat harness like a balloon. The practice was necessary because a good portion of their flight around the world in the rocket plane would be weightless—and they must learn to use the controls in this condition.

Meanwhile, at Cape Canaveral, Florida, North American engineers worked steadily to perfect a booster system which would lift the X-15B a hundred miles high, then push it to a screaming 17,000 miles an hour, exactly parallel to the earth's surface. The power had to be enormous. This was a man-carrying rocket plane—not a tiny metal basketball. Two monster Atlas ICBM's were used for the first stage. A Thor IRBM was the second stage. The bird itself, augmented by Aerojet solid-fuel bottles fastened to its flanks, was the third stage. All assembled, it was an awesome combination of power. But North American was taking no chances. They'd already fired an exact scale model of the X-15B—mounted on the boosters—out over the South Atlantic test range. Not once, but fifty times. The results had been most satisfactory.

Laning began powered flights in the fourth week of flying. The plan was simple. The X-15B was dropped fifty miles away from the dry lake to give it room to build up speed and altitude. The idea was to reach top speed soon after the drop—coast to max altitude over the lake—and spiral down, empty of fuel, for a landing. Each powered flight was preceded by careful hours in the X-15B flight simulator—a very complex electronic gadget which enabled Jones and Bartholemew to "fly the mission on the ground." Laning insisted on perfection in every detail—perfection and lightning reactions. And, as they grew more skillful, he tossed in progressively more serious emergencies: cockpit decompression, stoppage of oxygen, fire in the air.

"We'll be the hottest mock-up pilots in the Air Force before we're through," Bartholemew growled at Jones. And Jones grinned. They'd been getting along better since the flying began. And he was just as anxious as Bart to take off the wraps and really shove the X-15B out of this world.

It happened, as was routine with Laning, with unexpected suddenness. He told them casually one evening that Bart would go to 200,000 feet the following morning. And at ten o'clock the following morning, Major Bartholemew was in the X-15B, fastened under the B-52, flying northwest of Tehachapi, about sixty miles from Edwards. The count-down for the drop was nearly complete.

"You all set down there, Bart?" Captain Pete Peterson, the drop-panel operator, asked over the radio.

"All set, Pete."

"O.K.—recheck radio contact with your chase plane. You may need him coming down."

"Roger," Bart said.

George Jones was flying chase, slightly above and behind the B-52 in a Lockheed F-104 with tip tanks. Bart called him and he rogered. He was tense.

This test was going to be considerably higher and faster than any they'd tried. Two hundred thousand feet wasn't the top altitude possible in the X-15B—not by any means—but it was getting up there.

The B-52 pilot, Captain Bob Yule, radioed: "Stand by, Bart. One minute to drop. I'm building up to 600 miles an hour in a shallow dive. I'll be level at 44,000 feet. When I kick you out, you'll be roughly fifty miles from the lake on a southeast heading."

"Right," Bart radioed tautly. "X-15 standing by."

"O.K.—here it comes. Five. . . . four . . . three . . . two ... one . . . Drop her, Pete!"

The X-15B fell cleanly, nose down, and George Jones added throttle and came down with it, edging up abreast, and looked at Barthoiemew's white space helmet through the narrow windscreen, pressed tightly back against the contoured headrest, ready for the brutal acceleration of the rocket motor..

"I'm lighting the torch now," Bart's voice said.

Jones peered at the tail. Instantly a cloud of white vapor swished out and trailed behind the steeply gliding plane.

"No light, Bart," Jones radioed. "Just fuel."

There was a short delay. Then Bart's voice said, "I've tried two starts—but she don't seem to catch. The fuel-flow meter races like crazy. But the lox meter seems to be stuck."

"You're getting plenty of something out the back," Jones said. "It's white and it looks like a high-pressure fire hose."

Bart didn't reply. Jones could see him bending forward in the cockpit, his head down. The desert, far below, looked soft as a beige rug in the morning sun. The San Gabriel mountains had flattened out like sand piles. The Los Angeles smog lay in a gray lake almost out to Catalina Island.

Jones checked his altimeter. It stood at 36,000 feet. He spoke into his radio: "We're down to angels thirty-six, Bart. Better stop fooling with a start. You haven't got enough fuel for the mission now, anyhow. Dump everything and head for the lake."

"It's the lox," Bart said, his voice muffled, still bending forward. "I think maybe "

"Bart!" Jones said sharply. "Stop kidding around. Dump your fuel and head for the lake. We're down to angels thirty-six!"

Bart's head popped up. He looked out. Instantly Jones saw a huge billow of white as the fuel was dumped. Bart was quick. When he decided to move, he moved! Almost at once the rocket plane's glide became shallower as the great weight of the internal fuel and liquid oxygen was jettisoned. The two planes were passing through 31,000 feet and there was still a long way to glide. Jones now heard Colonel Laning's voice coming from the helicopter which hovered near the lake. "This is Laning, Bart. What's up?"

"I couldn't get her lit. I'm coming in, dead stick. Estimate touch down in less than ten minutes."

"Where are you?"

"Northwest. Quite a ways out. But I've dumped fuel. I'll make it, no sweat."

But Jones was sweating. They were at 26,000 feet. The X-15B's glide angle, even empty of fuel, was steeper than any plane which had ever flown. It was all "hard metal"—alloy steel, not lightweight aluminum. If Bart let the rocket plane get below 180 miles an hour it would stop flying and start falling like the proverbial stone.

Jones stayed off the radio. He knew how he'd feel in Bart's place. He'd want quiet to think. Because it was going to be close. Already that had become fearsomely evident. If Bartholemew got the X-15B back to the safety of the big white pool table at all, he'd be squeezing it in over the dunes. And he couldn't touch those dunes. Not at 180 miles an hour. They looked soft and level from high altitude, but they were not. They were twenty to fifty feet high, with gullies between.

Now, far ahead, Jones could see the white spread of Rogers Dry Lake, and the new buildings of North Base, toylike, glittering in the sun. He looked for Laning's helicopter. At first he missed it. Then the sun glinted on it, low down, hovering near the touchdown area.

"Hello, Bart," Laning's voice said. "I have you in sight. You look low. Better check your glide range."

Bart did not roger. The X-15B flattened out slightly in the air. Jones knew this because he had to ease his nose slightly higher to stay level. The rocket plane's glide actually seemed to improve, to stretch out, for several moments. Then Jones noticed his altimeter dropping faster than before. It was basic—a thing you learned in your first Cub. Raising the nose did not stretch the glide, if you were slow. It steepened it.

"Bart," Jones said, "you're mushing. Drop your nose."

There was no reply. But the nose came down.

Laning said sharply, "Laning to X-15. You read me, Bart?"

"Yep."

"You can't make it, Bart. You can't glide in. You'll have to bail out."

Bartholemew didn't reply.

Jones moved in quite close now, on the whig. He knew the rocket plane's cockpit, knew the things Bart should be doing to eject. Bart wasn't doing them. He was sitting hunched, forward, peering straight ahead at the lake. Jones radioed, "Bart—Laning told you to eject!"

Bart did not turn. His face was hidden by his space helmet. "Bart!" Jones shouted. "Get out of it! Leave it! Quick!"

Bart made no move. The rocket plane was at three thousand feet and Jones could see its shadow—and his own plane's shadow—streaking across the desert below. The horizon was rising up in front of them, a blazing yellow wall, pocked with sage and tumbleweed. The lake, quite close, was partly hidden by the configuration of the dunes. Jones saw a bright flick of metal as Bart jettisoned the stubby ventral fin which jutted downward under the plane's

tail. The fin was for directional control in the very thin air of high altitude. It had to be dropped prior to any landing.

Now Jones held his breath. Too late to eject now. Too low. Maybe Bart would make it. Maybe the laws of aerodynamics would be repealed for this one landing and Bart would bring the X-15B in as they did in the movies, skimming the dunes, and grease her on for a perfect three-pointer.

The rocket plane hit half a mile short of the lake. It hit like a huge bright shell, and bounded high in the air, turning slowly, sickeningly on its back, and then it struck again, in a savage tumbling boil of metal and sand and fire.

Christine was waiting when George Jones came into the yard. She was white and her eyes were red; she came directly to him and held him and shook. He said, "Take it easy, hon. Take it easy."

Her voice was muffled against the cloth of his shirt. "I thought it was you! I saw it! We both did. We were out in the yard watching. Oh—when the plane hit—oh "

He held her with both hands, tight against him.

"It was your turn to fly today, wasn't it?"

"We didn't do it by turns," he said. "We did it by blocks of time. Betty saw it, you said?"

"Betty saw it. She thought it was you. Until the phone rang. I couldn't answer it. I just couldn't. Betty answered it." Christine stopped, and he held her, feeling her body quiver. She pulled away and looked up at him, her eyes stary and wet. "They thought—whoever called—that they were talking to me. So they just told Betty. They told her Bart had been killed."

// he'd only ejected, George Jones thought. // he'd only got out of the thing. He had time. He had warning.

Betty Bartholemew wanted the funeral at Edwards. It seemed fitting to her. Bart wouldn't want to lie in some musty cemetery with civilians. He'd want to lie in the desert, under the brassy sky, in a grave that would tremble when a jet broke the sound barrier and laid its sonic whip on the earth. Betty was quite calm. Many people came, Air Force people who'd known Bart, flown with him. Some of them made cross-country jumps over great distances. Some had gold lightning on their visored field-grade caps. Some didn't. Bart's friends fitted no pattern. He picked them for one reason only: he liked them. "They show me something," was how Bart put it. Or, if not, "They show me Zilch."

The day of the funeral, Betty rode in General Holton's car and there was an honor guard of pilots, in dress blues, at attention in the 100-degree heat, for two hundred feet on both sides of the main gate at Edwards. Betty Bartholemew waved to them and she didn't cry. She did not cry then, and she might never have cried at all if the Crimson Sabres, greatest jet acrobatic team in the world had not arrived unexpectedly from Nellis Air Force Base to pay their final respects to an old skipper.

They came in very low and tight from the direction of the lake, like four

shells, growing big with eerie soundless speed, passing slightly to the right of the cemetery, and the boom of their supersonic passage smashed the desert like a giant fist, and then the four blood-red Sabres pulled straight up in a vise-tight diamond wedge and exploded, high above, in the most spectacular stunt of all—the bombburst break-up.

Nice, George Jones thought, peering into the sky.

The fighters tore out into the blue distance, on their backs, toward the four corners of the compass, curved downward, rollercoastered toward the earth, and pulled back toward the cemetery—four, crimson bullets streaking together to pass low, directly overhead, in a furious explosive supersonic farewell. George Jones saw Betty Bartholemew then. She was watching the planes, curving into the distance in a join-up, and her cheeks were wet.

"Good show," George Jones said softly. "Bart would have liked that one."

"It was a good show," Christine said, "and I'm sure Bart would have liked it. Could we go home now?"

"Right."

"And please don't say any more about good shows," Christine said. "Not now. Not today. I've had about all the good shows I can stand for about a week, say."

"Take it easy, honey."

"I'll take it easy."

"Good," he said. "Fine."

He drove out of the cemetery and back through the desert toward their house on the knoll. As they neared the house they saw a blue staff car parked in the driveway. Christine said softly, "So help me, if it's that little jerk of a Laning, I'll —"

"Stop it!" Jones said sharply. "It's not Laning. Lan-ing's in the hospital."

"What!"

"He wasn't there today—so I asked. He's got burns on his face and hands. Bad ones. It seems he thought Bart might still be alive and tried to go into the burning plane after him."

"Oh—oh, gee, honey—I'm so sorry—I didn't know."

"It's all right," Jones said. "I know you didn't." He looked sideways at his wife. "The colonel's quite a litde guy. They didn't pick a boy for this one, Chris."

The staff car was empty, but there was a VIP identification sign inside the windshield: General Albert Byrd, Air Research and Development Command.

"Who is it?" Christine asked.

"General Byrd. The big boss himself."

"What do you suppose he wants?"

"I don't know," George said. "I don't know what he wants."

But it was a lie. He did know.

And then General Byrd walked around the corner of the house, followed by

his aide, and Colonel Jones came to attention and snapped the general a taut G.I. salute.

Of the five Air Force pilots who reached the final, grueling elimination tests for Project Great Circle, one was dead, one permanently disabled. Two men broke under the severe strain. Now Jones knew that the success of the terrifying venture into outer space would depend upon him alone.

General Albert Byrd, boss of the Air Research and Development Command, was a rangy, lantern-jawed man of fifty who still climbed into the hottest jets American brains could devise and wrung them out until the rivets creaked. He did it methodically, like work. The lack of excitement in his flight reports was a legend. "The airplane seemed to fly fairly well," was wild enthusiasm, coming from General Byrd. But when he gave a fighter or a bomber the thumbs up, it was certain to be a deadly piece of combat hardware. The things General LeMay had stood for in SAC, General Byrd represented in ARDC: the simple best.

Now, in George Jones' yard, General Byrd bowed to Christine. "My apologies for breaking in at a time like this, Mrs. Jones. I know what you've just been through. I hope you'll forgive me."

"Of course, general. Won't you come in?"

"No, thanks. Not this time. I want to talk to your husband."

"Certainly, general. If anyone wants coffee later, just let me know."

"Thank you, ma'am. We will."

Christine Jones went into the house and shut the door. The three officers were alone. General Byrd said, "Sorry to barge in, colonel, but it's important. But before I state my mission, I must ask you something: how soon can you fly the X-15B around the world—with safety?"

"Our target date is June, sir. Late June."

"I know your target date, colonel. That wasn't what I asked."

Jones met the general's eyes. They were blue and very steady. He said, almost formally, "General Byrd—when the X-15B is ready, I'm ready."

The trace of a smile touched the general's tough mouth. "Very well, Jones. If that's how you feel, I'll lay out the cards. The Russians have a boost-glide project going too. This we know positively from our intelligence. And their target date is not late June. It's early May—about a month from now. They beat us with Sputnik. Now they are out to beat us with a manned space vehicle. Let me put it this way. Russia and the United States are like two actors on a stage. The audience is the world. It's more than national pride that's at stake here. It's alliances, foreign policy, maybe the safety of all of us. At least, that's how the Joint Chiefs look at it. They want us to be first this time—if we can be first without taking too big a risk."

"Yes, sir," Jones said.

"We've got the boosters ready at Cape Canaveral. We can ferry the X-15B over under the wing of the B-52. All we need is a pilot."

Jones smiled. "Sir—you now have a pilot. When is the next plane for the

cape?"

"The next plane for the cape," said General Byrd, "leaves in about forty minutes. It's a McDonnell Voodoo. I'm flying. You're riding in the back seat."

Cape Canaveral, in April, was at its best. The winter rains were gone and the summer heat had not yet arrived. The sea was a sheet of green glass under a cloudless sky and the beaches looked like powdered sugar in the sun. But for George Jones it was a madhouse of hurried last-minute preparations. Secrecy, of course, was no longer possible. The boosters were erected on the sky line of the cape: two Atlases and a Thor, with the X-15B mounted vertically on top. Through field glasses the assembly looked like a cluster of heavy pilings with a finned shell sticking straight up out of the middle.

Jones spent every waking moment at the cape going over the mission details. They were launching southeast over the established missile test range for obvious reasons. They could utilize the radar tracking stations—the boosters would fall into open ocean—and the earth's rotation would give the X-15B a bonus of 1000 miles an hour.

The course was a great circle passing over the tip of Africa, north of Australia, and across the Pacific Ocean back to Edwards Flight Test Center, in California. As « far as Australia, the X-15B would fly at about 17,000 miles an hour. Then it would start "skipping" back into j the earth's atmosphere and would slow down to normal landing speed by the time it reached its destination. The orbit would be a circle—not an ellipse—and it would be about a hundred miles high.

News of the upcoming flight had, of course, been head-lines for weeks. Jones' fan mail was a paper flood. I Young girls wished to marry him. Crackpots warned him that the X-15B would be felled by a heavenly thunderbolt if it attempted to leave man's "natural home." There were many offers from book-publishing houses, magazines, advertising concerns and movie companies. These were handled by the Information Services Officer in behalf of Colonel Jones. One offer—\$250,000 for the movie rights to the George Jones story—he had signed. He wanted Christine taken care of and this was a way to do it.

On the fifteenth of April a secret message came from Central Intelligence advising that Russia had increased her effort to launch a manned space vehicle. The launch date was not known exactly. But it would be very soon, maybe within the week. That evening, General Byrd appeared at Colonel Jones' quarters and was admitted by the Air Police guard. Byrd stayed five minutes. When he left, Colonel Jones put through a call to Christine, at Edwards. You were not supposed to tell your wife these things. And you could never find a pilot who admitted he had. But they all did. And no serious sabotage had yet been traced to this sort of revelation.

When Christine came on the wire, George said, "Hi, honey. How are you?"

"Oh, darling! I'm fine! How are you?"

"I'm fine," he said. "Reach over and get a grip on the I sofa or something."

When her voice came again it was altered. The brightness and the lilt were gone. "All right. I've got my grip."

"This is classified, of course. Even though the news- I papers have been predicting it for weeks. But I'm going tomorrow morning. Or rather—going and coming. I'll be down at Edwards for breakfast. You got any of that buttermilk-pancake batter around?"

He heard her take a breath. Then she said, "I sure do, sweetheart. Ride that beast now. Keep a firm hand on him."

"I will. See you soon." He paused. "I love you, Chris. You know that."

"I know it," she said. "And I love you. You'll never I know how much."

It was five o'clock in the morning and just beginning to be light when Colonel Jones arrived at the X-15 launch area. General Byrd and Doctor Stewart, the flight surgeon, were with him. A ready room of sorts had been improvised inside the firing blockhouse. It was equipped with a portable grill, a cot, locker for the space suit, and a small refrigerator. None of them had spoken much driving out from Cocoa Beach. Colonel Jones had not slept well. He felt tight and witchy and scared—the way he'd always felt in Korea before a tough strike.

The flight surgeon said, "I've got a juicy little T-bone in the cooler, colonel. How do you like it? Medium rare?"

"Skip it," Jones said curtly. "Not hungry."

"Coffee?"

"Yes. Coffee. Black." He turned to General Byrd. "How's the count-down coming, sir?"

"They've been at it since midnight. It looks all right. We're only about forty minutes behind."

Coffee was brought and he drank it. He lit a cigarette. It tasted bad. He stubbed it out. the flight surgeon said, "On the blast-off, colonel, suck in your gut as tight as you can after you feel the bird begin to rise. It will help you tolerate the G loads."

He nodded.

The flight surgeon said, "As you know, the worst acceleration will be after you fire the third stage at high altitude. We calculate about ten G's—which would make you weigh about sixteen hundred pounds. But it could go higher, and you could black out. So it would be better to use the automatic cutoff circuit "

"Knock it off!" Jones said harshly. "I know the flight plan. Just let me alone, will you!"

"Sorry, colonel."

"Skip it!"

He knew about the third stage. If he goofed with the third stage he'd cause the X-15B to veer crazily into outer space, then plunge back in at 17,000 miles an hour and dissolve in fiery dust, like a meteor. Those monster boosters

would lift him a hundred miles high and level him on course. At that point it was up to his own brain and fingers—working the tiny controls at the ends of the contoured arm rests. He had to light off the third-stage power—the Aerojet bottles and the X-15B's own main engine. It must be done with great precision, taking into account his exact speed, altitude and flight path.

Jones said, "How much longer, General Byrd?"

"About forty minutes," General Byrd said. "I guess you'd better get taped and suited."

He went to the bathroom. Then he stripped to his shorts and lay down on the cot, and the flight surgeon taped him brutally tight across the back and abdomen with wide white adhesive. He got into the aluminized suit and the plastic helmet, leaving the visored face plate open. He laced his high-top boots. When he stood up he felt as if his body were in a vise. His legs, untaped, felt oddly loose and limber. On the wall of the blockhouse, the public-address system said, "T minus thirty. Calling Colonel Jones. Please go to the plane as soon as you're ready, colonel."

The red warning light was glowing on its tall pole when they reached the launch pad. The many-platformed test stand rose like a skyscraper above them. All night it had been lit by floodlights and covered with men. Now, as the three officers stepped out of the elevator high up on the stand, next to the cockpit of the X-15B, the area was almost deserted. The sun had not yet risen, but there was a glow like hot iron coming from below the rim of the ocean. The sea glowed like mother-of-pearl in the predawn, and westward, over the Indian River, a delicate brown haze hung low. Jones looked around him deliberately, trying not to miss any detail. The place seemed incredibly beautiful and precious. He felt slightly sick at his stomach. In another half hour, he could very easily be dead.

He crawled into the contoured seat of the X-15B— lay down in it, actually, with his feet above him, and General Byrd helped him with the straps. Byrd went over the straps with slow care. Then he said, "That does it, colonel. You can close your face plate now and pressurize your cockpit. I'm taking off in a few minutes for Edwards in a jet. But you'll beat me in." The general thrust his hand into the cockpit and Jones gripped it.

He closed his face plate at once and went on oxygen. The heavy nickel-steel lid closed slowly over his head and locked shut. He turned on the nitrogen gas which would pressurize the cockpit during the flight. He could not breathe nitrogen, of course. It was an inert gas. Its use kept his external body pressure normal—and prevented any chance of explosion. Jones turned his G-suit up to the highest notch—an added precaution against blackout—and spoke into his helmet mike. "X-15 to Ground Control. How do you read me?"

"Fine, colonel. You ready to sound off your preflight check?"

"All set."

"O.K. Take her slow and careful. We'll double-check you down here."

He went over the items. The cockpit had been pre-checked. He found

nothing wrong which would necessitate calling a hold.

"T minus five minutes," the ground controller said. "All personnel take cover. T minus five."

Jones heard a grinding sound—saw the steel tower moving slowly away from the plane. Then he could see nothing but blue sky above him through the double-paned windshield. His heart was thudding. He felt it in his throat. And his mouth was very dry.

"One thing, Colonel Jones," Ground Control said. "We've got a man assigned to do nothing but watch for booster malfunctions—as you know. He won't say a word unless it's a matter of life or death. But if he sees a booster start to go sour—he'll give the ejection order. He'll say: 'Eject now!' And he'll say it plenty loud. Don't wait—even a second—if you heard that order. Punch the button and get out."

"Roger," Jones said. A powerful ejection mechanism had been rigged which would sling the cockpit upward and outward—as a capsule—and there would be time for a parachute to blossom and let him down safely. Or so it was claimed. It would be touch and go.

"T minus two minutes," the ground controller's voice said. "I'm starting the firing sequencer now. All hands stand by for lift-off."

Jones shoved his head back hard against the contoured rest. He pressed his body tightly in the seat and made sure his fingers were positioned properly on the finger-tip controls.

"T minus thirty seconds."

Fifteen stories below him, the maze of cooling nozzles hurled a white blast of water into the flame buckets. Jones heard nothing inside his space helmet. Then the two Atlas boosters lit with a shattering roar. He felt the cockpit vibrate like a monster tuning fork. The sound knifed through steel and plastic and lay like a hot blade on his eardrums—and then the X-15B began to rise, slowly—then rapidly—and the sound fell behind and was lost.

The first stage fell free at forty miles high. The second stage fired at once. The automatic guidance system caused the rocket plane to bend over toward the horizontal. At no time was he subjected to any worse acceleration force than he'd been used to in jet fighters. The instruments were functioning nicely, and he thought: *Ifs a ball, after all.*

Then the second stage burned out. He was 500,000 feet above the earth, moving 9000 miles an hour. His flight path was on a true horizontal, and his direction was perfect. With a flip of his fingers he set the automatic cut-off device, and triggered his third-stage rockets: all the Aerojets and his internal power.

He sagged back in his seat. Invisible pressure fell on him. The flesh crawled away from his teeth and gums, and the lids of his eyes rippled and left his eyes hopelessly open. He tried to cry out, but acceleration forces had paralyzed his throat muscles. Finally he lost consciousness and rode along peacefully while the radars on Cape Canaveral followed his rush, tracking his

speed with their precision instruments: 10,000 . . . 12,000 . . . 14,000 . . . 17,000 miles an hour.

He did not see the Florida coast recede behind him or Grand Bahama Island coming up, a golden mote on the dark sea—and then the Aerojets burned out and the automatic cut-off device stop-cocked his internal power and the X-15B coasted into orbit at terrific speed.

On San Salvador Island, a man at a radar console said crisply, "Third-stage firing complete. Rocket Plane running at 500,000 feet. It looks fine from here."

Colonel Jones did not hear San Salvador radio. He did not hear Mayaguana control when it called him. He lay in the cockpit—floated in it, really—held by the straps. He was weightless and he was unconscious.

"Grand Turk control," a voice cried out excitedly. "The X-15B is over this station now. He's moving almost too fast to track. Colonel Jones. Hello, Colonel Jones! Do you hear me, sir?"

Colonel Jones floated in the dark. Somewhere in the dark, a voice was calling his name. Insistently. Had been calling for, a long time. Gradually he came out of the dark. He moved in the straps and winked his eyes. The instruments came into focus, and he could see out through the windshield. He looked out on one of the strangest sights ever seen by human eyes: a hundred miles below him, luminous blue, streaked with curving white cloud strings, was the Caribbean. To the left was the Atlantic Ocean, covered with the cottony mass of an offshore front. To his right he could just make out the bulge of South America curving over the rim of the world, dark and green, and before him, low down, was the naked blinding sun.

He took a quick breath. The motion of his diaphragm lifted his weightless body in the straps. The straps restrained it. A voice spoke, close and warm, in his helmet, "Dominican Republic control. I have the X-15B now. He seems to be doing fine. Estimate his speed a little over 17,000 miles an hour."

Jones looked at his space panel and checked the ground report. It was satisfyingly accurate. Then the next station was calling him, Mayaguez control, on Puerto Rico. They were worried now. He was more than a thousand miles from Canaveral and he had not replied. The voice of the Mayaguez controller was not jubilant, as the last voices had been. It was a voice of doubt and waning hope. "I have the X-15B. On course. On altitude. But no pilot report. Colonel Jones. Calling Colonel Jones; calling Colonel Jones."

Inside his space helmet, Colonel Jones smiled. He took a deep breath and spoke over the radio, "Hiyah, Mayaguez control? How's the weather down there, son?"

There was a moment of pure silence. Then he heard Mayaguez drop his formal radio procedure and shout crazily, furiously, "I've got him! I've got him! The colonel! Oh man, oh man! He's O.K., everybody! He's fine! He's fine and he's going over me like a bat out of hell!"

Jones could not see General Byrd at this moment. General Byrd was standing in the launch blockhouse at Cape Canaveral, listening to the stations reporting by radio. When Jones' voice came over the speakers, Byrd stiffened. He listened. He heard Mayaguez' yell of triumph. A small smile played on his lips.

The sun was moving. It was separating from the rim of the world. South America was moving past on the right, dark green, with a bright maze of quicksilver threads where the mighty Amazon broke into multiple channels before it met the ocean.

Radar ships on the down-range stretch of ocean leading to Ascension Island began to call in, giving position readings of the X-15B. Jones hated to take his eyes away from the panorama which spread out below him to check his gauges. He passed close to Ascension, made radio contact, and slanted toward the African coast. The sun was overhead now. It made ink-black shadows in the cockpit, edged with almost incandescent brightness. He'd been warned not to look at the sun directly—even with the coated windshield to protect him. Its fierce glare would not be softened by air. It could conceivably burn the retinas of his eyes and cause permanent blindness if stared at for more than a few seconds.

Then the sun passed overhead and was behind him and he began to make out a low bronze line ahead on the edge of the dark sea—Africa. He would slice across the southern tip and plunge out over the Indian Ocean: five thousand miles and roughly eighteen minutes from Australia. Night would fall over that lonely arc of the globe and he would make his re-entry in total darkness.

A voice said cheerfully, "Hello, Colonel Jones. We have you now. This is Johannesburg control. You look good to us. On course. On altitude. And your, orbital speed is holding nicely at 17,000."

"Thanks, Joburg. I'm on the beam, looks like."

He was over Africa—a vast bronze plain in the low westering sun. The sky ahead was iron black. The bronze plain flowed out of sight behind him and then, quite suddenly, he was in the middle of night. He was well out over the Indian Ocean and there was no light except the delicate, peppery designs of the distant stars and the steady searchlight stare of the big ones. He could not see the moon at all, for a moment. Then he twisted and caught sight of it, white and clean as snow, low down on the southern horizon.

An eerie feeling crept over, him. Not fear. He'd been through so much in the past minutes that his fear threshold was worn out. He had gone past fear and wonder and exultation in these last minutes, and now he had an utterly strange and unexpected feeling: warm, eager, like a young kid lover looking at his sweetheart over an icecream soda. For it had come to him suddenly that this giant, silent dark was not for stalking and bombing and fiery death-bringing. It was for love. It was for sharing among all the frightened, angry, stubborn people down there: not just in America or England or Japan or wherever—but

in every nation on that turning globe beneath him. It was the earth itself which was home, once you'd left it for the star-blazing dark, and all the people of the earth were dear and close, were brothers. This, he saw—not improved TV or better world-mapping or all those other trivial things—was the gift of space. This was the hope.

Please, God, he thought, let the Russians come out. Let them know it too. Let the whole world know it.

Presently a voice spoke remotely in his headset. "This is Perth control. Calling Colonel Jones. We have you on longrange radar, colonel. We place you a thousand miles off the coast of Australia. Do you read us?"

"I read you weakly," Jones said.

"Hello, X-15B. Say again."

He reached for the gain control and his weightless fingers flew painfully into the radio. His body floated awkwardly after his reaching hand, but was snubbed by the straps. He twisted the gain control and raised his transmitter volume. "X-15B to Perth. Better now?"

"Much better, colonel. Now mark this. You'll begin your, re-entry as you pass our north coast line. Suggest you check your mission profile and prepare to fire retro-rocket."

He steeled himself. This was it. Re-entry. The deal where you had to go exactly by the book—if you hoped to stay alive. A space bird followed the inexorable law of the conservation of energy. Every ounce of power which the plane took on from those roaring rockets had to be accounted for. None of it was lost. It was merely changed into speed and altitude, and later, when the X-15B settled back toward the earth, into heat from the air's friction.

Jones used the controls cautiously—a short spurt of peroxide steam under the nose. The nose came up lazily. He let it rise until it was pointed straight out into space. He was now moving belly-first in the vacuum. The belly rocket was exactly opposed to his direction of motion.

He spoke into his mike, trying to keep his voice calm. "Hello, Perth control. This is Jones. I've rotated. I'm ready for firing instructions."

"Roger, Colonel Jones. We have you on radar. You are nicely on profile. We will give you a countdown from five to one. Fire retro-rockets when you hear the hack. Got that?"

"Roger," Jones said. "Standing by to fire retro-rockets."

He fixed his eyes on the red button under his right hand, put his ringer on it lightly, and waited. Maybe half a minute passed. Then Perth control spoke matter-of-factly over the radio: "Five Four three two one *hack!*"

He pressed the red button.

There was no sound. He was in the utter, silence of space, where there is no air to carry sound. Even the flare of the belly rocket was lost in the airless vacuum. The only reaction was a feeble back pressure which caused his weightless body to move forward in the straps. His speed had decayed slightly. Not a great deal—but enough to start the X-15B settling down for its

first skip off the upper, atmosphere.

"Very good, colonel," Perth radio said, coming in weakly now, with the increasing range. "You are on profile. Prepare to enter the atmosphere in about five minutes."

"Thanks, Perth. Jones out."

Gratefully, he used the space controls to drop the nose back to normal. When he could see the horizon again his breathing steadied out. It was quite a strain for, an air pilot to go slamming along broadside in outer space—a maneuver which would rip him to flaming bits in the atmosphere at high speed. He was passing north of Australia, heading for the island of New Guinea. And now, very gradually, he was losing his own weightlessness as the X-15B settled into the high thin air. The temperature on the outer skin had begun to rise.

A voice said, "X-15B from New Guinea control. Do you read?"

"Loud and clear, New Guinea. Go ahead."

"You're coming down into the air, colonel. We track you below 100,000 feet. Got the nose elevated?"

"Roger. Nose up."

"Trim?"

"Trim O.K."

"Good. Better get ready for a little heat."

From ahead, in the sky, something streaked at him like a huge bullet, and he ducked. In a moment, four more flashed by—great luminous shapes driving fear-somely at him, head-on through the dark. *Saucers*, he thought. *Saucers from space*.

His mind reeled. "New Guinea! I'm under attack! Big white missiles!"

New Guinea radio had a slight chuckle in his voice. "No sweat, colonel. Noctilucent clouds. Made of space dust. Normal at your present altitude. We've been following 'em on radar for hours."

Then a fearsome thing began to happen. The nose of the X-15B, which had been invisible in the dark, began, delicately, to glow. It had been predicted. Jones had been ready for it—he'd thought. Except that when it happened, his whole body went rigid and he ducked his face to the instruments, fighting down the quick irrational fear that clawed at his mind. He wasn't weightless now. Gently—but tense in every nerve—he babied the stick back. He felt the streaking plane mush on down for several seconds. Then the stubby wings bit the thin air and the X-15B rose sluggishly for its first "skip."

Fire, his mind whispered. *Fire. Fire. Burning.*

The instruments, for a second or so, became merely maddening, meaningless little needles as panic fought with reason in his head. Then a voice said sharply, "Hello, X-15! Eniwetok! You all right? We have you in sight—and you seem to be on fire!"

It might have been all right if Eniwetok control hadn't called him. He might have kept his head down, as Laning had taught him, and flown the X-15B

exactly like the simulator at Edwards. But now he looked out—and was instantly blind. The ceramic nose was white-hot. It glared straight into his face like a searchlight.

He panicked. He grabbed for the eject handle. Maybe the panic saved him. His gloved hand missed the handle —and then, in the back of his brain, a tough, curt voice said, *Steady down, jerk. Play it cool. Get on the gauges.*

Laning's voice. Laning's curt, tough voice—like a hard slap in the face. He gritted his teeth and stared at the instruments, and now they made sense. He saw what had happened. His first skip had been very short. While he'd been pressing the panic button, the X-15B had bounced shallowly off the top of the air blanket—and then plunged back in again—and he hadn't co-ordinated with his stick. The plane hadn't skipped. It had penetrated— and the heat of friction was now trying to turn it into a flaming meteor.

He eased back on the stick. A blood-red warning fight glowed. The air-conditioning system was overloaded. His body, inside the aluminized suit, was hot and wet as rubber. But the nose was coming up. The X-15 was rising back out of the thermal thicket—the savage friction was lessening.

"Hello, X-15," a voice said. "This is Midway control. Are you all right, colonel?"

He didn't answer Midway. He'd had every bit he could handle. There was nothing left over for yacking with ground stations. He hunched down, staring at the instruments. *It's just like the simulator*, he thought. *It's no problem. No problem. Just like the simulator.* He was riding the ragged edge. If something else happened—even a small thing

Hawaii called him. He did not answer Hawaii.

Many minutes passed. Very gradually, the viselike tension left him. He felt cooler. The skips were smoother. They were spaced right, the way they should be. The hypersonic speed was dropping. And then, because human curiosity can be stronger even than fear, he raised his eyes and looked out. The nose no longer glowed. He was much lower than he'd realized, almost down to jet level. The sea ahead was dark, but as he looked he saw a faint pink smudge on the far horizon—dawn. The same dawn he'd left about ninety minutes ago, in Florida. And then, like a long bright finger on the rim of the sea, he saw the California coast.

A voice said, "No transmission from the X-15. Nothing passing Midway or Hawaii. We have him on radar. He's inbound. But we can't raise him."

A second voice said, "Very well, chase. This is Edwards control. Colonel Jones may be unconscious. Try to snare the X-15 with your wings."

"Right Edwards. Understand. We'll try to bring him in piggie-back, if we can."

Jones knew he should call them instandy. They thought he was unconscious or dead. They thought the X-15B was going to pass over Edwards with a helpless or dead pilot and crash in the Nevada desert. He should call them now—but he didn't.

This was too good a chance to miss. He let the X-15B continue on course and watched for the chase planes. They could overtake him easily now. He was flying subsonic below 40,000 feet. And then he picked them up— two Lockheed F-104's curving in on his right wing like bright bullets. The slim fighters reduced power and fanned out on either side, preparatory to shoving their stubby razor-blade wings under the jutting wings of the X-15— as had once been done successfully to save a crippled jet pilot over Korea.

Jones snapped suddenly erect in his seat. He lifted his right glove to his space helmet and tipped the chase planes a little close-in Marine-type salute. And he spoke formally into his mike, "X-15B to Edwards control. This is Colonel Jones. Request permission to land on the lake."

Nothing happened for a second. Then one of the F-104 pilots let out a Texas yippee, pulled out ahead, pushed his nose down and booted in his afterburner. Jones saw the bright blast, saw the little fighter begin to slow roll, saw him going away, rolling, and laughed out loud.

From the ground a worried voice said, "Colonel Jones! You all right, sir? You in control?"

"You bet I'm in control," he said. "I'm in the pattern. Heat up the coffee. I'm coming down to land."

He banked over the knoll where his house was, crossed the Los Angeles highway and blew off the ventral fin as he lined up for final approach. He came low over the dunes at two hundred, to be on the safe side, and greased the X-15B onto the dry lake. It skidded for two miles across the hard white surface, yawed tiredly to the left, and stopped. Out of the distance, cars began to race toward him: jeeps, ambulances, fire trucks—looking like a stock-car scramble in the luminous predawn.

He hit the canopy release and felt the cockpit give up its pressure of inert nitrogen gas. He shoved his face plate open and felt the cool morning air on his face. Air. A kind of miracle. Just air. He looked up at the sky. It was getting bright overhead, and it was the color of a robin's egg, not midnight black. He breathed deeply, smelling the desert. They'd be here in a minute, all of them: Christine, maybe Laning, the generals—and he'd be glad to see them. Very glad. He had many things to say to them, urgent, important. But he was glad they'd given him this minute alone. The earth was quite a place to get back to, once a man had left it. A man was grateful for a little time by himself, just himself—before he started talking to anybody, even the woman he loved.

Panic on Runway 6

It was ten o'clock at night at McGuire Air Force Base, in New Jersey, and they were all sitting around the kitchen table making Joe's mind up for him. They had been doing it for three hours, and now they just about had it done.

"If you pass up this chance," Ruth said, "you'll be sorry the rest of your life. We won't get a break like this again, Joe."

Sgt. Joe Hildebrandt said, "The thing is, I don't know the first thing about used cars."

"Oh, for heaven's sake! Nobody expects you to! The point is, Dick says we can make eight thousand dollars the first year.. How much do you make running that crazy radar set out at the air base?"

Joe didn't answer that question. He'd been married to Ruth for almost twelve years and she knew very well what a master sergeant in the Air Force made. It wasn't \$8000 a year.

"One more thing," Ruth said, "while we're on the subject. How long did you stay over in England on that last so-called three-month tour, of temporary duty?"

"Now look, hon," Joe said. "They got my orders fouled up."

"How long?"

"All right," Joe said. "So it was fifteen months."

"Did the Air Force send me over to join you—the way they promised?"

"There were no quarters available."

Ruth gave a short laugh. "There never are, darling. Not for sergeants. For generals and bird colonels, but not for poor, broken-down, old "

"Hey!" Dick Cavanaugh cut in. "Ruthie, baby! Let the guy up. We're trying to wangle him out of the Air Force, not into a divorce court!"

Dick Cavanaugh winked at Joe across the table. Dick was Ruth's brother. He was a big, easygoing guy with huge hands and deep-set eyes who looked, Ruth said, like Boris Karloff as a young man. She was really sold on Dick. So were lots of other people, without quite realizing why. Dick was the kind of guy who'd buy you a beer or play a few holes of golf with you, and he wouldn't say much, but later, when you get around to selling your car or getting another one, you found yourself looking in on Dick Cavanaugh. And once you had looked in on Dick, you had yourself a piece of transportation. It was no accident that he operated one of the largest automobile agencies on the East Coast.

Dick Cavanaugh said, "I got it figured, Joe. You and Ruth can take out eight thousand the first year—maybe more—and it's just the start. I picked up this big used-car deal to round out my business, and it's got me snowed." Dick grinned at his sister. "Good men like the sergeant here are hard to find—and I'd like to keep the good news in the family if we can."

"Please, Joe," Ruth said. "You'll like it when you get into it. I know you will."

"Sure," Joe said.

But he wasn't sure he'd like the used-car business when he got into it. As a matter of fact, he was pretty sure he wouldn't. Joe was a Ground-Controlled-Approach operator. His job was to pick airplanes up on radar, in bad weather, and talk them down to a safe landing on a runway they couldn't see. Those planes cost a lot of money. Often they were full of people. You didn't make \$8000 a year as GCA controller, but it was an important job, and a job he liked.

"You do exactly what you want to do," Dick Cavanaugh said. "But it would be nice to have you with me. Ruth tells me you'll be finishing up a hitch the first of the month. So now's the time, son, if you want it."

Joe looked at Ruth. She smiled encouragingly. "Please, sweetheart—for me."

"O.K., Dick," Joe Hildebrandt said. "I'm outnumbered. I might as well relax and enjoy it. You can count me in."

Ruth came running around the table and kissed him, and Dick almost crushed his hand, and they opened some beer to celebrate. After a while Dick got up and said he had to leave. He wanted to drive over to Trenton tonight and get a good night's sleep, so he'd be bright-eyed and raring to go in the morning. In the morning, Dick said, he had to see a man about a car. Cars, that was. For the new lot.

Joe helped Dick on with his coat and said good-by, happy landings, but he didn't go outside to the car. He didn't feel good. There was a sick, rebellious knot in his stomach. While Ruth went out to see her brother off, Joe went into the bedroom and got undressed and got into bed. He was lying with his back to the door when Ruth came in. He heard her pause and he knew she was looking at him, but he didn't turn over.

"Joe."

"Yeah?"

"You mad at me?"

"Why should I be mad at you?"

"Please don't be," Ruth said. "It's going to be the best thing that ever happened to either of us. I know it is."

"Sure," Joe said. "It's going to be great."

When she got into bed and turned out the light, he knew she expected him to kiss her good night, but he didn't. He lay still and pretended he was going to sleep.

"Joe," Ruth whispered beside him in the dark.

"What?"

"I love you, Joe."

Me and eight thousand, Joe thought. He said, "I've got the double shift tomorrow. O.K. if we get some sleep?"

"Sorry," Ruth said. She moved across the bed, away from him, so that she didn't touch him. He knew she was hurt. He wanted to say something, but he couldn't. The hard knot in his stomach was still 'there. So Ruth wanted him out of the Air Force. So he was getting out. But he didn't have to like it. Not tonight. Not ever.

The Military Air Transport Service plane which had flown across the Atlantic Ocean from Lajes Field, in the Azores, was roaring sluggishly in the smog over McGuire Air Force Base in the late afternoon. There was no emergency. McGuire was equipped to handle bad-weather landings. It was the MATS port of entry for overseas traffic and the home of a group of jet fighters which protected the New York area. The runway was 10,000 feet long, and equipped with a Ground-Controlled-Approach system.

Sgt. Joe Hildebrandt was on GCA now. He'd brought the MATS plane downwind and turned it onto the center line of the runway, ten miles out, buried in New Jersey smog. He could not see or hear the plane, of course, sitting inside the GCA shack. But he knew exactly where it was by the greenish blips of light that moved unhurriedly along his two radarscopes. One blip followed the runway center line; the other slid down the glide-path index.

"Doing nicely now," Joe Hildebrandt said into the tiny mike that was stuck on wires in front of his lips. "On center line. On glide path. You are one and one half miles from touch-down."

He lifted a cigarette out of an ash tray, took a quick drag and let the smoke trickle out as he talked, "Still doing fine. On center line. On glide path. You are now one mile from touch-down, coming up on the field boundary."

He continued to talk as he watched the greenish blips close in on the touch-down points. The blips moved smoothly and steadily on course, the way they usually did when it was a Military Air Transport plane. Those MATS pilots were sharp boys. They loved to kid you. They referred to GCA as "Gonna Crash Anyhow" and were always whining because they had to make a GCA approach on every landing—regardless of how clear the weather was—just for the practice. But that practice wasn't any joke. Sometimes they came in with the birds walking, and they needed every bit of skill they had to get the airplane safely on the runway, even with Joe's help.

Now Joe saw he had the MATS plane in the bag, but he didn't stop talking. That was one of the most important rules in a Ground Controlled Approach. When you had an airplane on final approach, you talked to him every second. If he lost the sound of your voice for only five seconds he was required to execute a pull-up and go around for a new landing.

The blips slid past the field boundary, through a mild smear of greenish

light on the scope known as "ground clutter" and hit the touch-down points. A tired voice—the voice of the transocean pilot—said, "Thanks, GCA. Nice run."

Sergeant Hildebrandt slipped out of his headset. An Airman 2-lc, whose name was Charley Decker and who was serving his apprenticeship in the Ground-Controlled-Approach shack, said, "It sure looks simple when you do it, Joe."

"It is simple," Hildebrandt said. "All you need is a little practice."

"Like about nine years?" Charley Decker said. Joe Hildebrandt grinned. He liked Decker. The kid had a thin face, bright black eyes, and you didn't have to hit him over the head three times with a Controller's Manual to make it sink in. Joe Hildebrandt had trained a lot of approach controllers in his time, and by now he knew which ones were going to be able to hack it.

He said, "Don't get shook up, buddy. I've been at it for nine years. But it won't take you that long. You'll be handling C-Forty-sevens in six months in daylight; and in a year you'll be working jet fighters after dark."

"I hope so," Decker said. He hesitated. "Hey, sarge, what's this I hear about you getting out of the Air Force?"

Joe looked at him quickly. "Where'd you hear that?"

"My wife told me. She heard it at some meeting of the Airmen's Wives. I didn't believe it. I told her it was probably a goofball rumor."

"You hear all kinds of things," Joe said.

So Ruth had talked—even before he'd made up his mind last night. She must have been pretty sure she could handle old Joe when the time came. Well, he might as well admit it, she could handle him all right. He was crazy about her. Even after twelve years of marriage he got a little dizzy when she kissed him—really kissed him. Ruth was a plump brunette with red lips, and the Old Nick peeping out of her eyes. She still got plenty of appreciative glances when she went out on the dance floor at the NCO Club on Saturday night, and Joe still got just as jealous as he had when they were kids, just married.

Lately Ruth had been giving him quite a bit of static, but she had reasons. A master sergeant's pay didn't go very far these days, now that it cost you as much to shop in the PX and the commissary as it cost you in town. And rents around air bases were rough. You weren't any hero now, in peacetime. You were just that guy in the blue suit who worked at that awful base where those noisy jets were. No children, please. No dogs, please. What's your GI rental allowance? Well, now that's a coincidence, because that's exactly what we're asking for rent! Joe knew it had made Ruth a little bitter. He didn't blame her. It had made him a little bitter himself.

Airman Decker stood up and stretched. "There's nothing on the scope, sarge. O.K. if I run over to the line and get a bite to eat?"

"Go ahead."

"Can I bring you anything?"

"Yeah, a ham and cheese on white. And a carton of coffee."

"Roger dodger," Decker said, and squeezed past Joe's chair to the door of the GCA shack. When he opened the door, a cold draft sprinkled with raindrops eddied in. Joe glanced outside. The smog was dark brown in the fading light. He could see the rain in bright streaks on the light from the doorway.

After Decker was gone, Joe picked up one of the phones that hung beside him on the control panel. It was not necessary to dial. All the lines were hot.

"GCA to tower," Joe said. "How's the weather?"

"It's down on the edge," a voice said. "If it goes much lower, you can have the evening off. Well close the field to GCA."

"How about the wind?"

"It's shifting around. We'll be using Runway Six from now on."

"Roger," Joe said, and hung up.

Runway Six Zero—6 for short—was the main instrument-landing runway at McGuire. It was 10,000 feet long. They used it whenever possible in marginal weather, because it gave a pilot some leeway if he miscalculated and overshot his approach.

Joe Hiltebrandt did not hear the jet fighter until Decker came back with the sandwich and coffee and opened the door. Then Joe heard it clearly—a muted, sizzling taxiing downwind toward takeoff position.

Decker, shut the door, and Joe said, "What's with the jet?"

"There's a bogey out over the ocean. They tried to contact it by radio, but couldn't. The jet is going out to look him over."

"It's probably another one of those airliners off his course," Joe said. "I'd hate to risk my neck in weather like this, just to read a number on some civilian's tail!"

"I've got news for you, sarge," Decker said. "I wouldn't go up in this soup if Khrushchev and Bulganin were inbound with the ghost of Stalin in the back seat!"

Hiltebrandt smiled. He unwrapped the wax paper from the ham and cheese, took a bite, and chased it with a gulp of coffee. Outside in the darkness he heard the jet fighter wind up for take-off. It was an F-86-D Sabrejet, a single-seater with a radar nose and an afterburner. One man did the flying, the radar watching and the shooting—if any. It was quite a job on a smoggy night.

"Here he comes," Decker said. "Hold your hat, sarge."

Hiltebrandt heard the jet scream go up the scale like a soprano reaching for a high note, then explode in a shattering roar as the afterburner cut in. He got up and opened the door and watched the fighter hurtle past—a smear of winking red-and-green lights, pushed by the pale-blue torch of the afterburner flame. The AB shook the shack. In a few seconds the jet was gone. It was solid dark now, and Joe did not know whether, the smog was better or worse. The runway lights were fairly clear, but there were red smog halos around the warning lights on the distant water tower, and the rain seemed to be getting

heavier. It would be rough on that jet if the rain got really bad. Rain was worse than smog for cluttering a radarscope. The bigger the drops the worse it was. Somewhere in the GCA manual Joe had read that if the raindrops reached ten millimeters in diameter they could blot out the whole scope with "rain clutter." It was nice to know that the jet had a number of alternate bases.

Hiltebrandt did not hear any more from the jet for about forty minutes. Then the tower called to say that the jet had made its interception. Joe's guess had been right. The bogey was a United States civilian airliner, inbound from Bermuda. He had been blown off his course by heavy winds.

"Our fighter is bucking those winds now," the tower said. "We're not sure yet, but he may be pretty short on fuel when he arrives."

"Are you declaring an emergency?"

"Not yet. We'll wait a little longer."

"Roger," Joe said. "I'm standing by."

He glanced at his precision-approach scopes and felt a sudden soft lurch in his stomach. The sweeps were moving briskly up and down, like ghostly windshield wipers, but the dark face of the cathode tube was not clear now, as it had been a little while ago. The sweeps left smears of light behind them as they moved. Rain clutter. There must be a shower hanging out over the approach path.

Hiltebrandt rose and opened the door; then shut it against a blast of water. This was no shower. It was a line squall.

Charley Decker said, "Something wrong, sarge?"

"No," Joe said. "Everything's O.K. Just a little rain."

He sat down at the scopes and carefully reduced his gain control. The rain clutter faded to a shadow. It was possible to see the indexes again. But he was breathing faster and the tips of his fingers were moist when he adjusted the control knobs. It was marginal, but it was still O.K. He wouldn't call the tower yet and suggest that the fighter to be diverted to another field. If it didn't get any worse, he could hack it.

A buzzer sounded and Joe picked up the phone. "Hello, GCA. This is the Intercept Room. Do you read?"

"Loud and clear," Joe said. "Go ahead."

"We have a jet fighter coming in now. He's about five minutes out, and he's very short of fuel. We've cleared everything out of the area below five thousand feet. It's an emergency. Stand by to take him over. Did you read?"

"Roger," Joe said. "Standing by for fighter."

He hitched his chair, closer to the console. For almost a minute he saw nothing. Then a blip, very faint, swam onto the edge of the screen.

Joe spoke into the mike. "GCA to jet fighter. I have you on my scope now. What is your call sign? Over."

The reply was instant. The pilot's voice was steady and formal—too steady, too formal. Joe had handled too many pilots not to recognize a scared one.

"Hello, GCA," the pilot's voice said. "My call sign is Hob Nob One. I've got

minimum fuel aboard. Request straight-in approach."

"Roger, Hob Nob One," Hildebrandt said, keeping his voice loose and easy. "Understand minimum fuel. Am bringing you straight in. Turn right now, to a heading of zero six one."

He watched the blip on the screen, very hard to see through the rain return, even with the gain turned low. He felt hot. His whole body felt hot, and the skin under his clothes seemed to be stretched very tightly over the bones.

"Coming nicely," he said into the mike. "Coming up nicely on course. Your approach heading is zero six zero. Take that now. You are on center line. Approaching glide path. Check wheels down and locked. Take your ten-second warning now. You will be on glide path in ten seconds."

The pilot's voice said something indistinct. Joe didn't catch it. It sounded like a gasp or a curse. The kid was shook now. He had his finger on the panic button. Give him just a little more heat, he'd shove it.

"On glide path now," Joe Hildebrandt said easily. "Doing very well. I suggest a rate of descent of six hundred feet per minute. Start descending now. You are on glide path, on center line, two and a half miles from touchdown."

The blip on the glide path was lengthening now, and turning into a jagged diamond like a malfunction on a TV screen, and as Joe watched, it became very thin and formless as the sweep moved over it, and the jet moved into the thick of the rain. The blip was visible for another instant; then it disintegrated in a pale flicker of bluish light and the glide path was sheeted solidly with rain clutter.

The pilot's voice said sharply, "I'm in solid rain now! "

At the console beside Joe Hildebrandt, Airman Decker cried. "You've lost him, Joe! You've lost the guy! He's almost into the ground! Give him a wave-off, quick!"

Joe hunched forward, peering frantically at the scope. There was no flicker, no hint of the position of the fast-moving fighter. The scope was opaque with shimmering olive-green light.

Joe sucked in his breath to speak—when the pilot's voice, ragged and frantic, tore at his eardrums, "I'm getting a red light! I'm out of fuel! GCA, can you read "

Joe heard his voice break in, and he was surprised at the sound of his voice, easy and cheerful and unworried, as if he were working an old reliable C-47 in bright sunshine.

"Sure I read you, Hob Nob One," Joe Hildebrandt's voice was saying. "Don't worry about the red light. You've got enough fuel to make the runway—and you are doing fine. Very nicely on center line. Coming down glide path in good shape. Hold everything just the way it is, Hob Nob One. You'll be on the runway in a few seconds."

Hildebrandt had grabbed the remains of his sandwich and squeezed them into a wad of wet dough, but he didn't know it. He wasn't sitting in the shack

now. He was up there in the fighter, counting seconds; doing now, in his mind, from his nine years of experience, what he could no longer do by looking at the radarscopes.

"On glide path," Hildebrandt's voice was saying. "On center line. One half mile from touch-down. Doing fine now, Hob Nob One." He snatched a breath and went on, steadily and smoothly, still estimating seconds, "You are coming over the field boundary now. You are coming over the runway. You are approaching touchdown " "

He held his breath. His ears strained for the crash. There was no sound from the outside. There was nothing but the rushing of the ventilators and the lash of the rain against the walls of the shack. And then, from outside on the runway, Joe Hildebrandt heard the sound he'd been praying for—the high, hot whistle a jet fighter makes on its landing roll out.

He took off his earphones and laid them on the console. Charley Decker was looking at him. His face was greenish-white in the light of the scopes. He started to say something, and then the speaker on the wall hummed, and a voice, firm and strong now, said, "Hello, McGuire tower. This is Hob Nob One. I'm down O.K. I'm off the live runway. But I can't taxi. I'm flamed out!"

A grin spread slowly over Airman Decker's face. But he still didn't speak. He looked at Joe Hildebrandt and held up his right hand. The thumb and forefinger made a circle, and the three other fingers thrust out stiffly.

Ruth was waiting in the kitchen of the apartment when Joe Hildebrandt came in shortly after midnight. He saw immediately that she had prepared herself specially for the occasion. She'd fixed her hair and put on bright-red lipstick, and she was wearing the cream-colored housecoat he'd brought her from Hong Kong the time he'd gone in there with a MATS flight. Big deal. Pretty young matron greets successful car-salesman husband. Joe wished she hadn't done it. He felt crumby in his wet GI's. He felt crumby because of what he had to say.

"Hi, general," Ruth said. "I've got some chicken legs all thawed out, ready to pop in the fry pan. Say the word."

Joe said, "Look, Ruth. I've got to tell you something. I'm sorry. You won't like it. I've changed my mind. I'm backing out of the deal with Dick. I thought I could hack it, but I can't."

He stopped talking and looked at her. It was coming now. The angry words. The tears. Maybe she'd even get **her** coat and walk out. It happened in the Air Force all the time.

Ruth said, "Well, I'm glad to hear that, Joe. Now I don't have to feel like a liar any more."

"Liar?"

She giggled. "You know what you look like, Joe? Just like a sick cow. Now don't worry. It's going to be all right. I called Dick in Baltimore this afternoon and told him you aren't going into the car business with him after all."

Joe felt as if he were standing on a window ledge and didn't quite know how he got there. He said, "Why? Why, baby?"

"I changed my own mind," Ruth said. "It's a girl's privilege, you know. I thought about you quite a lot today, Sergeant Hildebrandt. I finally realized that you'd make a very lousy car salesman. You are too old, too stubborn. So I just called brother Dick and told him." She grinned. "Now how about that fried chicken?"

Joe didn't answer. He ran around the table and grabbed his wife and pulled her tightly against him, she laughing a little and beating his chest with her fists. "Joe—honestly—you're soaked! I declare—I never "

Joe didn't let her finish. Her lips were just a scant few inches away. They were red and full and very soft-looking. There was only one thing left for an intelligent man to do under the circumstances, and Joe Hildebrandt was no moron. He did it.

Test Jump

He came suddenly wide awake—without the usual reluctant limbo of yawning and stretching—and the fear that had festered in his mind all night, even while he slept, surged through his nerves like a spurt of sickish fire. The window beside the bed was gray. The hands of the luminous clock stood at five a.m. Lt. Jim Mitchell shut off the button that would have triggered the alarm, and shook a cigarette out of a pack on the bedside table. His fingers trembled a little when he lit it. He took four deep drags and stubbed the cigarette. Then he mashed it to a pulp.

"Two hours," he said softly. "Two lousy hours." He sat up on the edge of the bed. There was no point in worrying about the test now. He'd worried about it continually for the last ten days—ever since he'd volunteered. He'd gone over it in his mind, time after time, like some kind of endless horror movie—up to the point where he pulled the red handle. At that point his mind quivered and stopped. He did not want to imagine what might happen after he pulled the handle. The only consolation was that whatever happened, it would be quick; eight seconds after Jim Mitchell pulled the red handle, he'd either be safe on the ground or he'd be dead. At 0700—a little less than two hours from now—he was going to make an ejection from the back seat of a two-place Super Sabre, at 170 miles an hour, while the airplane was still racing along on the runway.

"This is no county-fair stunt," General Hall had told them at the briefing. "You men all fly Super Sabres. You know what an engine failure on take-off can mean. It can mess you up pretty bad. Let's face it! It can kill you!"

General Hall was a big bulldog of a man with tough, red-veined eyes in pouchy eye sockets and many ribbons on his left chest. He was not an armchair general. He was an ex-fighter pilot: six Me-109's, two Focke-Wulf 190's.

He wiped his chin with his hand. "This new rig has been thoroughly tested," he said. "The Cunningham Parachute Company has made thousands of dummy ejects, but all the dummy ejects in the world won't prove a new chute. For that you need a human being."

General Hall looked deliberately around the room. "I'm not here to throw a lot of bull. I'm just here to tell you men that the Air Force needs a good foolproof quick-eject rig. A parachute a man can use while he's still very low, or even on the ground, at high speed. Engine failure on take-off is about the last really hopeless spot a jet-fighter pilot can get into. We hope the

Cunningham chute will plug it. I'd like to hear, now, from a volunteer."

A voice directly behind Jim Mitchell said instantly, "I'd like to volunteer, General Hall. Major Hernandez, here."

Jim looked back over his shoulder. Major Vic Hernandez was hunched forward, a stocky man with bright black eyes, a domed forehead and short black hair. Hernandez was presently the No. 2 jet ace in the United States Air Force—fourteen MIG's—and he had been brought here to George Air Force Base, in the Mojave Desert of California, to pass along his experience to young pilots. Hernandez was Jim Mitchell's squadron commander. He was more than that. He was Jim's idol, even though Mitchell would not have mentioned this, or even admitted it, if someone had asked him. But ever since he had been in Hernandez's squadron, Mitchell had been trying to be like him: fly like him, shoot like him, fight like him.

After Hernandez volunteered, General Hall said, "Thanks, Vic, but maybe I'd better say a little more. A great deal of the value of this test is going to be psychological. We want to make movies of it and show it to the cadets." General Hall smiled a little and continued. "Maybe we're wrong, but we think a cadet will have more confidence in this Cunningham parachute if he sees it being used by a green young lieutenant, instead of a grizzled old combat type like you, Vic."

Vic Hernandez smiled a little. He was twenty-eight years old and there was not a gray hair on his black head. Lt. Jim Mitchell felt his body grow suddenly tense, the way it used to do when he was a kid, walking out on the high board with everybody watching. He licked his lips, and swallowed quickly.

Then he said, "General Hall—I'd like to volunteer."

"Name?"

"Mitchell, sir. Lieutenant James Mitchell."

"Had any combat, Mitchell?"

"No, sir."

"Ever made a parachute jump?"

"No, sir."

"Good," General Hall said. "I want to talk to you, Mitchell." He glanced around the room. "The rest of you men are free to go."

When the room cleared, General Hall outlined the details. He spoke bluntly. There wasn't any real danger if everything went the way they were sure it would. There had been only one failure in all the tests Cunningham had made: The chute had streamed, and Fearless Fred, the dummy, had hit the ground at 170 mph. "There wasn't much left of old Fearless," General Hall said. "But it won't happen again. We've completely redesigned the quick-eject springs."

"Yes, sir," Jim Mitchell said. His lips were very dry, and he could hear his heart thudding in his chest. Even now, just a few minutes after volunteering, his nerves were beginning to tighten up.

That day they got a little worse. That night he had trouble sleeping. From then on, he thought about the test constantly when he was awake and dreamed

about it when he finally got to sleep at night. The nights were the worst. He lay and looked up at the ceiling and listened to the clock tick, and his stomach got slowly tighter and tighter, until he wanted to grab the clock and smash it against the wall. Volunteering—brother, volunteering was for the birds! If he came through this miserable test alive, he knew one thing for sure. He would never volunteer for anything again as long as he lived. . . .

Now, as he sat on the bed in the BOQ, Mitchell felt weak and dizzy from loss of sleep, and he had begun to get a little frantic. This was the day. In less than two hours he was going to have to go through with it. *What if I funk it?* he thought. *What if I climb in that plane and then can't pull the handle?*

"You'll pull the handle, all right," he said softly. "You can't get out of it now."

The room made him feel shut in. He shaved and dressed quickly and went outside. The eastern mountains, beyond Apple Valley, were sharply black against the bright-rose of predawn. From somewhere came the faint sound of a jet. Mitchell looked up and made out its shape. It was a B-47 Stratojet—probably out of Castle Air Force Base, at Merced, California.

Mitchell wished he were up there now in an F-100 Super Sabre. There was a rivalry between the fighter pilots at George and the bomber pilots at Castle. The B-47 jockeys claimed no fighter plane in the world could lay a gun camera on them—not when they were at max altitude and traveling full bore. All they had to do was make a gentle bank. If the F-100 tried to stay with them in the turn he'd pull so many G's he'd stall and spin. Sure the 100 was fast. It held the world's speed record: 822 miles an hour. But, up high, speed wasn't everything.

"Any time you want to put a month's wages on it," Lt. Jim Mitchell had once told a B-47 pilot, "we'll put a gun camera on that old hack of yours. May take us a couple of yo-yo's, but we'll do it!"

It was easy to be cocky up there in the stratosphere, with 30,000 feet of soft blue air under you. No matter what happened at 30,000 feet, you had time to do something about it. Down low—on the runway—you didn't. Your life was dependent upon that device made by the Cunningham parachute people. It was a complicated device. Every detail of it had to work instantly and perfectly or you weren't a man any more. You were a twisted huddle of bloody rags on the runway.

A car came around the corner of the Officers' Club, braked in the gravel, and a voice said, conversationally, "Morning, Jim. Training **for** the Ground Observer Corps?"

Mitchell stopped staring at the B-47. Maj. Vic Hernandez had stopped beside him in his red convertible. Beside Major Hernandez on the front seat was Maj. Craig Smith, Hernandez's buddy. Major Smith was a West Pointer. He was thin and very erect when he walked. He had gray hair, always kept his uniforms immaculate, and had just missed becoming an ace in Korea. He had four MIG's. Major Smith moved over in the front seat and held the door open.

"Get in, Mitchell," he said. "We'll take you down to the flight line and get you some breakfast."

"I " Mitchell said, and stopped. "Listen, I "

Major Smith grinned a little. "I know exactly how you feel, Mitchell. You want to sweat, but you can't. The sweat's freezing in the pores."

"Get in, Jim," Major Hernandez said. "Time's awasting."

Major Hernandez was going to fly the test plane this morning. Jim Mitchell had asked especially for him. He wanted that airplane flown right—no yawing, no porpoising. He wanted to come out of the back seat cleanly when he pulled the red handle, without a lot of dangerous body English.

Suddenly the panic welled up inside him. *I can't*, he thought wildly. *I'll have to tell them.*

But he didn't speak. He got in and Major, Hernandez headed down toward the flight line. The sun had come over the rim of the mountains. It laid a flat bright-orange light on the sides of the buildings. Over to the west, across the runways, a faint brown smog which had seeped through the pass from Los Angeles lay behind the Joshua trees. Except for the faint brown haze, the desert was clean and bright in the low sun. It was the most beautiful light Jhn Mitchell had ever seen. It had an unnatural brightness and cleanness, and the seconds that were passing were nightmarish, and desperately precious. Maybe, in another hour and a half, he wouldn't be able to see this vivid desert sunlight. Maybe everything would be black, and there would be a crowd of people looking down at something under a blanket on the runway. *Not if I stop now*, he thought, almost angrily. *Not if I refuse to make this crazy test.*

He said, "Major Hernandez."

"Yeah, Jim?"

"Would you stop the car?"

"What?"

"Would you stop the car, please? I want to get out."

"Hey," Hernandez said. "What gives?"

Jim Mitchell's lips felt numb. He said, "I can't go through with the test, Major Hernandez."

There was an instant of silence as the car rolled along. Then Hernandez said, quietly, "They're all down there waiting, Jim. General Hall, everybody."

"I don't care!" Mitchell almost shouted. "I can't do it! Stop! I can't!"

Hernandez pulled over to the curb. Mitchell twisted the door handle and got out. He didn't say anything. His whole body was getting the numb feeling that had been in his lips.

Major Smith said, "If you back out of this test, now, Mitchell, you're through in fighters."

"Sure I'm through in fighters! I'm probably through in the Air Force! But I'm still alive!"

He didn't look at either Smith or Hernandez. He was shaking now. He

looked down at his hands. He wished he could slug somebody. He wished they'd yell at him, call him yellow, spit on him. They just sat there looking at him.

He heard Major Smith say, "The boy can't hack it, Vic. We might as well take him back to his room."

Hernandez spoke in the same quiet way Smith had used. "I don't know," he said. "It happens to a lot of people, I guess. Remember that wingman you had, back at Kimpo, Smitty? The guy who got all clanked up the first time you spotted some MIG's over Sinuiju? You had to break off the engagement and fly fighter escort on the guy to get him home again, didn't you?"

"That's right," Major Smith said.

"It isn't an unusual thing at all," Hernandez said. "It happens to lots of people. Some guys can hack it, some can't. . . . Get in, Jim. We'll take you back."

Mitchell stood very still. Hernandez wasn't sore at him. Neither was Smith. They were sorry for him, blast them. Spouting all that junk about Kimpo and MIG's. It wasn't Jim Mitchell's fault he hadn't been to Korea. He just hadn't been old enough at the time. He'd been a senior in high school, sneaking over to the local airport to get flight lessons on the q.t. in a Cub. *Some guys can hack it, some can't*, he thought. *I can't. I'm one of the poor guys who can't.*

He could never remember being more frightened in his life. He almost felt like throwing up. He stepped forward then, and pulled the car door open and got in.

"Take me," he said, and his voice squeaked thinly. "Take me down to Squadron. I have to get my crash hat

before I " He ran out of breath and stopped before his voice broke again. He felt Vic Hernandez put the car in gear and pull away from the curb. . . .

People were milling around the test center when Lieutenant Mitchell came in in his flight gear—pilots, mechanics, motion-picture cameramen. General Hall was sitting at a table, drinking coffee. His face looked red and beefy in the morning light, but his tough general's eyes were very alert. "Morning, Mitchell. Sit down. Have some coffee."

"Thank you, sir," Mitchell said.

Everything in the room seemed brighter than normal. People, when they moved, seemed to have a faint, bright outline around them. Somebody set a cup of coffee on the table beside him. He sipped it. It was scalding hot, but he scarcely noticed.

Over beside the soft-drink machine he saw Gordie Williamson, the technical representative for Cunningham. Gordie was a good tech rep. He had a pale face, wore rimless glasses, and looked at this moment as if he had slept in his clothes. Gordie grinned and held up his crossed forefingers. Suddenly Jim Mitchell couldn't sit still any more.

"Excuse me, please, General Hall. I think I'll go on out to the plane."

"Go ahead," General Hall said. "Good luck."

"Thank you, sir."

The TF-100 was parked on the hardstand about two hundred feet away. Except for the extra seat, it was identical to the standard F-100 Super Sabre: barrel belly, droop-snoot air intake, thin swept wings. It wasn't pretty, but you knew what it was for. It was to kill people with, and it looked terribly fast, even with the bulging fuselage and the silly-looking intake. Standing still, in the low sun glare, the TF-100 had a fiery sheen on its flank, and cast a long shadow on the concrete.

Trying to keep his mind blank, Mitchell hurried over and climbed in. He put on his crash helmet, hooked in his intercom, and then, very carefully, he fastened the fittings of the Cunningham parachute to his body. They were leaving the canopy off for the test. When Mitchell was ready to eject, he would reach down and yank the red steel handle on the floor beside his left thigh. An explosive charge would hurl him eighty feet into the air.. Just before he reached the top of the rise, the seat would fall free. Then a set of heavy springs would fling the parachute fully open, and he would float safely to the ground.

Jim glanced at the red handle beside his thigh. There was a safety guard over it. In order to use the red handle, he would first have to remove the safety guard. He saw Major Hernandez crawl into the front seat. There was a delay while Hernandez went over his preflight cockpit check; then a soft rush of power in the earphones in Mitchell's helmet.

Hernandez's voice said, "Hello, Mitchell. You read me all right?"

"Read you five square."

"Good. I'm not going to horse around when we get out on the runway. I'm going to line up and shove the needle to her. Make your ejection check now."

"Yes, sir," Mitchell said.

"You can take the safety off the red handle," Hernandez said. "You aren't likely to bump the handle by mistake—and you don't want to forget to unsafety."

"Roger," Mitchell said.

He looked down at the red handle. He put his left hand down and touched it lightly. He withdrew his hand. He was breathing heavily and his heart was jolting. He looked outside. They had cleared the people away from the airplane and taken down the ladder. The camera crews were driving off in their vehicles to get set up along the runway. They had rehearsed the take-off. They knew where the Super Sabre would reach 170, and the crews were concentrating on this area. The camera they were really counting on for the best footage was mounted behind Mitchell inside the cockpit. It was mounted on an axis. It would catch him as he catapulted free, and would turn automatically, photographing him continuously up to the point where the parachute opened.

"Mitchell."

"Yes, Major Hernandez?"

"You all set back there?"

"Yes, sir."

"Go ahead and unhook now. Take your intercom cord out."

"Roger."

He pulled his intercom cord out of its jack and tucked it into a loop on his flight suit. They weren't missing even the small bets. They wanted him to come out clean, upright, and not tumbling. A streaming chute wasn't the only thing you had to worry about on a ground-level bailout. You had to think about tumbling. You would be in the air only a few seconds. If you flipped or tumbled, there wouldn't be time to straighten out before you hit the ground.

Mitchell heard the starter cart roar, there was a heavy rushing sound behind him and a hot, rising whistle in his earphones. He saw the ground crew unhook the starter cart and pull it back out of the way. Hernandez immediately applied taxi power and moved down the feeder runway in front of Base Operations. Fire trucks and ambulances were parked out on the field in the heat shimmer beside the live runway. Mitchell looked quickly away from them, down at his feet. They were squarely in the ejection stirrups. Everything was tight. With the canopy off, the breeze of motion swirled weakly in over Hernandez's shoulders and washed coolly over Mitchell's face, and he could smell burned JP-4 jet fuel and hot metal.

Hernandez swung into take-off position and Mitchell could see his face as he turned sideways and looked over at the tower. Hernandez's cheek moved a little and Mitchell knew he was talking to the tower on the radio, getting take-off clearance. Then the big jet engine rose to full military power, the afterburner booted in, and they were moving.

Mitchell ducked forward and shut his eyes. / *can't*, he thought frantically. / *can't—/ can't*.

He opened his eyes. The airspeed needle was moving around its dial: 70 ... 80 ... 100 ... 120 ... He looked down, realized the safety was still on. He fumbled with it, got it free, looked at the speed needle passing 175, and yanked the red handle with all his might.

Something savage smashed him, like a collision in traffic, and he felt a sharp, bright pain in his back, and then he was out of the airplane, and the airplane was below him, a bright vee-winged shape, pulling out from under him, pulling ahead, and his helmet tore loose and he was looking at the desert without the green visor, in all its flaming dawn glare.

He felt the seat drop away. He seemed to be floating without gravity pull, and things were suddenly very clear, and he was falling, and the chute had not opened. He screamed and grabbed crazily for the hand release, and couldn't get it, and then something hit him in the back, like a heavy push, and he felt the chute go out, felt the leg straps yank viciously in his crotch, and then he was steady and floating downward under the big canopy of the Cunningham parachute. The canopy oscillated gently in the jet wash left by the Super

Sabre, and he hit the ground hard, fell and rolled. ...

He was on his feet when General Hall's jeep arrived, and his back hurt, really hurt. "You all right, Mitchell?"

"Yes, sir—except my back. My back hurts like the devil, general!"

The medics unhooked his chute, and they were very careful in getting him onto the stretcher. There was a flight surgeon in charge. The flight surgeon and General Hall rode with him in the ambulance on the way to the base hospital. The flight surgeon asked him to move his fingers, then his toes. He didn't understand why. When they reached the hospital the flight surgeon had him taken immediately to the X-ray room and they took pictures of his back before they moved him into a bed in the ward.

General Hall stayed with him. He talked and joked. The eject had been a success. They had good movie coverage. Now, when those X-ray pictures came through and they were sure everything was going to be all right, they could feel pretty good about the whole thing. Lieutenant Mitchell tried to listen to General Hall, but it was difficult. He was listening for the steps of the person who would bring the X-ray pictures. The flight surgeon had said they'd rush-develop them. It wouldn't take long. Twelve or fifteen minutes. The flight surgeon was very cheery and pleasant about the pictures, but there was something about him that scared Jim Mitchell. The pictures themselves, and wanting him to wiggle his fingers and toes. And the beads of sweat on General Hall's face, even though it was cool in the ward.

Presently a pimply-faced young man in a white smock came to the door, holding some glittering, dripping black strips in his hand. He was the assistant to the flight surgeon, and he was obviously nervous in front of General Hall, and spoke in very technical language. But the gist of it was good. Very, very good. The pimply-faced young man said that First Lieutenant Mitchell had torn a number of highly-technical-sounding muscles loose from some highly-technical-sounding places along his back. But the spine hadn't been hurt. The spine was all right.

Maj. Vic Hernandez and Maj. Craig Smith had come in while the technician was winding up his medical lecture. Hernandez was still in flight gear. His hair was matted from the crash helmet and there were sweat marks on his flight coveralls. Major Smith was in suntans, and looked, as always, as if he had just stepped out of a bandbox. When the technician stopped talking and left, they saluted General Hall and walked over to Mitchell's bed.

"How are you, Jim?" Hernandez asked.

"Fine."

"Good," Hernandez said. He grinned. "I hear you gave everybody heart failure. The chute didn't pop till you were halfway down."

"He fell about twenty feet," General Hall said. "I aged five years, I think." Hall wet his lips. "The fix should be easy, though. We'll set the timer on the eject-springs a little ahead."

"And take some of that powder out from under the seat, sir," Jim Mitchell

said.

They all smiled.

"We'll keep the same amount of powder," General Hall said, "but we'll release its pressure a little more gradually."

Hernandez was looking down at Mitchell. "Anything we can get for you, Jim? Magazines, anything?"

"Nothing," Jim Mitchell said. "And thanks."

"No sweat," Hernandez said. "If you think of something, have the nurse call Major Smith or myself."

"I will."

Hernandez saluted General Hall. Smith saluted too. They stepped out into the corridor, and Mitchell heard their footsteps diminishing, a door open and close, and silence.

General Hall said, "Two fine officers, Smith and Hernandez. I guess they were about the best team we had in Korea, when things really got hot."

"Team, sir?" Jim Mitchell said, feeling something prickle gently across his scalp.

"When I was over there," General Hall said. "They were flying out of Kimpo against the MIG's. It was before Hernandez got his own squadron. He was still a first lieutenant, flying wing on Smith."

The prickling sensation was gone now, and Jim Mitchell had a strange sensation of lightness and of lifting. *It isn't an unusual thing at all*, Vic Hernandez's voice was saying, in his mind. *It happens to lots of people. Some guys can hack it, some can't.*

Jim Mitchell lay back luxuriously on the pillow. His back ached and his head ached, but he felt good—very, very good. As a matter of fact, when he thought about it, he couldn't remember ever having felt better in his entire life.

Runaway Prop

It was still dark when Capt. Frank Comisky and his aircraft commander, Lt. Col. Harry Sims, approached their Douglas C-133A transport plane on the ramp at Dover Air Force Base, in Delaware. The rear cargo doors stood open. A Thor intermediate-range ballistic missile, locked on its rubber-tired transport dolly, was lashed in the cavelike belly, giving off dull aluminum glints as Sgt. Nick Spina, the loadmaster, crawled around checking the tie-downs. Overhead, the sky was clear. Operations had advised that the weather would be perfect for the flight to Europe: a big blue Bermuda High sitting over most of the Atlantic, a sweet twenty-knot tail wind at altitude, and the sea itself as smooth as a sheet of glass. "Looks like a milk run today," Lieutenant Colonel Sims said in his West Virginia drawl.

"Yes, sir," Comisky said. *They're all milk runs*, he thought, *if a man's used to scrambling jet fighters at night in blowing snow*. He glanced at Sims. The aircraft commander was a little wizened guy, slightly potbellied, whose nickname was Pappy. He'd spent most of his adult life in transport planes—12,000 flying hours, to be exact—if, indeed, you could call it flying when you had an autopilot, navigator, engineer, and a couple of airmen to bring you coffee and doughnuts.

"I've got to stop and check the weight-and-balance sheet with Sergeant Spina," Lieutenant Colonel Sims said to Comisky. "You go ahead. I'll see you in the cockpit."

"Roger, sir," Comisky said.

Maybe Sims wouldn't be any great shakes as a fighter pilot, Comisky thought, but he sure was a demon when it came to checking out an airplane. From the way he bird-dogged that big C-133 you'd think it was going to crash in flames if the center of gravity was off by a quarter of an inch. You couldn't crash this monster, if you tried, Comisky thought. Not with those big eighteen-foot fans putting out 24,000 horsepower. If you felt like it, you could hook onto the Officers' Club and pull the joint out by the roots. "Flying a C-133," Comisky had written to Col. Dick McGuire, his old skipper at Elmendorf AFB, in Alaska, "is like sitting on your front porch, flying your house. Only duller."

In Alaska, Comisky had flown F-102 Daggerjets—delta wing fighters which could slide through the speed of sound like a fresh razor blade through soapsuds. With a Dagger-jet you didn't fiddle around for hours with weight-and-balance sheets before take-off. When the howler blew, you took it on the

dead run. And if you didn't have wheels up, boring into the arctic night in less than three minutes, you heard from Colonel McGuire. "Those enemy bombers aren't going to sit up there and orbit while you jokers finished a hand of poker," McGuire snarled. "Let's get the lead out—or I'll get me some boys who will!"

Frank Comisky had thought Colonel McGuire was joking when he told him about the transfer from jet fighters to the Military Air Transport Service at Dover. But it was no joke. As McGuire explained it, the Air Force suddenly needed more big-plane pilots to carry Thor missiles, now in mass production. Somebody had to lug them across the Atlantic to the N.A.T.O. countries and Frank Comisky was elected. "Cheer up, Frank," McGuire said. "They tell me the C-133 is a miraculous bird. Biggest, fastest prop-jet in the U.S.A.F. You might get to love it."

But Colonel McGuire wasn't kidding anybody. He knew Comisky wouldn't get to love the C-133. Putting a fighter jockey into a cargo plane was like pulling Fangio out of his Ferrari and sticking him behind the wheel of a dump truck. And Comisky hadn't adjusted well at Dover. Not well at all. Several times, at the bar, when he'd had a couple of martinis, he got to sounding off about jet fighters, and finally Maj. Nelson Kimball, the navigator in this morning's plane, had picked it up. Not with anger, but worse—with ridicule.

"Tut, tut, captain," Major Kimball had said, after one of Comisky's sallies. "We can't all wear yellow scarves and fling champagne glasses into the fireplace. Got to be a certain number of working stiff's around to fly these big planes. How else can we resupply our far-flung bases and bastions? The peanut bar and the razor blade, y'know. They also serve."

"I'll fly your aluminum barn," Comisky said, staring at Major Kimball, a big curly-headed man who looked somewhat like Fred MacMurray in the movies. "But for your information, major, I don't have to like it!"

Kimball merely laughed this off.

Now, on the ramp at Dover, Comisky walked along beside the monstrous low-slung belly of the C-133, spoke to a couple of Douglas tech reps who were going along to play nursemaid to the Thor in flight, and climbed up to the flight deck. Major Kimball was checking his navigation equipment and did not look up. Sgt. LeRoy Diffenbaugh, the systems engineer, had a radio headset on over his wilted rag of a GI cap, and was leaning forward, squinting at his panel. Diffenbaugh's eyes were puffy from sleep and his beefy face was sweating in the cool morning air. Comisky saw young Airman Cummings, the scanner, shove a stack of comic books under some map cases.

"Morning, Cummings," Comisky said. "Little technical reading, there?"

Cummings blushed. "Be over nine hours, sir. I just brought 'em along to help pass the time."

"Oh, I'm not criticizing," Comisky said. "I'm with you, Cummings. I've been falling behind on Steve Canyon myself."

They call this set of characters a crew! he thought. *They entrust a*

\$6,000,000 airplane and a \$1,000,000 missile to them! How carefree can we get with the poor taxpayer's money?

Lieutenant Colonel Sims took even longer, than usual in his preflight inspection. The darkness was long gone and the low pink light of the sun was streaming across the field when he finally had the big bird checked to his satisfaction and lined up for take-off. The take-off itself was a brief bit of excitement for Comisky, assisting in the copilot's seat. Used to the skyrocket leap of a jet fighter into the air, he still had not become accustomed to the take-off roll of the C-133. This morning the potbellied brute was really loaded; 17,000 gallons of fuel for its prop-jets plus the massive Thor missile and its wheeled dolly. She needed runway—lots and lots of runway—to get up the speed to bellow off into the sky.

"All set, Comisky?"

He looked across the controls at Lieutenant Colonel Sims, who'd just spoken on the intercom. Sims was looking at him. He said, "All set, coloneL"

"O.K. We'll roll it."

The C-133 started very slowly and ponderously, the props screaming like explosive whips, and gathered speed as if it were moving through heavy mud. The marker lights moved past tiredly. Midfield passed, the speed increased and now the distant tree line at the end of the runway was rushing toward them. Sims let the speed build, then, smoothly, he eased the nose wheel off the deck, and an instant later the big plane was airborne.

"Wheels up!" Sims snapped.

Comisky brought them up just as the plane blasted low over the wall of trees in its flat full-power climbout. Sims let the speed build some more, called for flaps up, Comisky gave it to him, and they were clean, banking toward the east over Delaware Bay, with the dark shape of lower New Jersey bulking ahead. Behind New Jersey was the Atlantic Ocean. Thousands of miles of open empty water, many hours of steady droning. From now on, until they set down in Europe, there would be nothing to do—nothing at all—except drink coffee and watch a bunch of twiddly needles, and after that there would be another trip, and another, and another, until he got like Pappy Sims: bald-headed, potbellied, and too old to care. *Break out the comic books, Cummings. Old dad will be back to join you any minute now.*

They had crossed the New Jersey coast line, climbing steadily, and were out of sight of land when Comisky spotted the two vapor trails, very high, at one o'clock. Something tightened in his stomach. He spoke into the little mike on wires in front of his lips: "Colonel Sims— two jet fighters. One o'clock high."

Sims bent forward and searched the upper air through the windscreen. His duck-billed cap had become a little twisted on his head, giving him a slightly gawky, hillbilly appearance. "Don't see 'em, Comisky."

Comisky looked again and the trails were gone. "Don't see them myself, sir. They must have left the con level."

The fighters started their run on the C-133 from above and behind. They arrived at terrific speed without any warning—two sleek arrowheads in steep dive, very close together, and as they passed the lumbering giant they slowly rolled over on their backs, as one plane, held inverted for several seconds as they plunged into the abyss, then righted and shot upward. Comisky saw the pilots light off their afterburners and jump their speed powerfully as they climbed to vanish, high above, in the bright canopy of the sky. They were F-102 Daggerjets.

"Trie kiddies," a voice said amusedly over the intercom, "are out having their morning fun and games."

Comisky twisted in his seat and stared at Major Kimball, who had just spoken. Comisky spoke slowly, spacing his words: "Major—just for the record—I'd like to offer you a ride in a two-place jet fighter the next time we have a chance. Like to show you how the kiddies feel with six or seven G's riding on the back of your neck."

"Well, thanks, captain," Kimball said lightly, "but I really wouldn't be interested "

"You're danged right you wouldn't!" Comisky cut in harshly. "You smart boys are quick with the funny cracks. But you're a little slow when the going gets a little bit rough "

"That's enough of that!" Lieutenant Colonel Sims' voice said sharply. "Both of you! Kimball, you know how Comisky feels about fighters. Stop this childish ribbing. You, Comisky—I'm giving you a warning now. When you speak to a senior officer—to anyone on this aircraft—keep a civil tongue in your head. Or you won't be flying C-133's. You won't be flying anything. That clear?"

"Yes, sir!" Comisky said.

"Yes, Colonel Sims," Kimball said smoothly, but without the mocking note. "I'm sorry, sir."

Nobody spoke then. The airplane roared along in its flat, gradual climb, outbound from the United States. There was a period of strained and uneasy silence on the intercom. Then Sergeant Diffenbaugh reported the plane on climb schedule, everything in the green, and the cockpit gradually calmed down. The sea dropped far below. The sky became darker as their altitude increased. They were flying a step profile—progressively higher altitudes as the fuel diminished and the big airplane became lighter.

They were at 22,000 feet, moving 300 miles an hour, when the first surge came on No. 1 propeller. It was not serious. In fact, it was so slight that they might have missed it if Captain Comisky had not been looking at the instruments at the moment. He saw the tachometer needle on No. 1 prop dart upward out of its green arc and ride in the red—105% overspeed—and his left hand automatically reduced power on No. 1 engine.

Sims' voice said instantly, "What's wrong, Comisky?"

"Surge, sir. Number one."

"O.K., Comisky. I'll check it out."

Sims' gloved hand moved No. 1 throttle forward cautiously on his side of the console. The engine speed had fallen. Now it climbed smoothly back to the green arc—and held steady there. There was no further surging. "Seems to have cleared up," Sims said presently. "Navigator?"

"Yes, sir," Kimball's voice said at once.

"What's our present position?"

"On course—about twelve hundred miles from our destination."

"How about the Azores?"

"Have to check it, sir. Take a couple of minutes."

"All right. Check it."

In a little while, Kimball's voice said, "We are a little less than six hundred miles from Lajes Field, on the Azores."

"O.K., Kimball. Thanks. We probably got no sweat—but let's watch our position pretty close now, until we see. If we have to divert I don't want to have to wait for a position report."

"Roger, sir," Kimball said. "Understand."

Sims then called Sergeant Diffenbaugh and Sergeant Spina and advised them of the prop surge. Comisky, who was monitoring the intercom, was surprised that the aircraft commander should take so much trouble over so small a malfunction. If something really serious happened, old Pappy would probably drop the yoke and punch the panic button right through the flight console. Comisky remembered emergencies he'd had in jet fighters in Alaska. Coming back to base at night, in blowing snow, with just enough fuel for one pass at the icy strip. When you'd hacked a deal like that, you couldn't get too excited about a minor fluctuation in one propeller out of four—in broad daylight.

The actual emergency came about twenty minutes later, after everyone had calmed down. There was no change in the sound of the engines, no flutter of the instruments—at least none that Comisky saw. Something simply blew a hole in the cockpit like a shell, there was a fierce in-blast of air and noise, the big plane staggered like an old lady tripping on her skirt, and when Comisky peered through the boil of dust and papers he saw Lieutenant Colonel Sims lying on the flight console, his duck-billed cap still under his earphone saddle, but his whole face a wet red mask of dripping blood. There was an instant of incomprehension, and then Comisky's belly sucked tight and his eyes slitted shut against the flying debris as he leaned forward to check the panel.

It took about three seconds to find it: No. 1 tachometer winding up out of this world—but the torque at zero—and a frantic, steely screech knifing through the jagged hole. They'd thrown No. 1 prop. The engine was running away, was going to explode with overspeed in another second or two. Comisky's left hand moved briefly to the proper throttle, yanked it back hard and the steely screech subtracted itself from the general roar.

A voice tore into his headset: "Engineer to pilot! Fire! Fire on Number

Two!"

He looked up. It was true. The fire-warning handle glowed a steady fearsome red. Comisky feathered the prop, then grabbed the fire handle, yanked it down, turned it to lock. He hit the extinguisher switch, held it down. Three seconds passed. The red light inside the plastic handle went out.

He snapped, "Pilot to navigator. Kimball—sight-check our damage! Quick! Give me the word!"

"Navigator to pilot," Kimball's voice said raggedly. "We threw Number One prop. It hit Number Two. Then it deflected forward into the cockpit and hit the skipper "

"Is the fire out?"

"Yes—yes, it seems to be."

"Good. Now take the skipper out. Strap him in a bunk. Give him first aid. I'm going to have my hands full with this big "

His hands were full already. The C-133 was losing altitude and the right wing—the one with power—was trying to rise in a steep bank. Comisky trimmed against the rising wing, holding it down with all his strength as he did so. His heart came down out of his throat when he felt the aileron tabs take effect, knew they weren't going to roll over on their back and spin. The big plane leveled, nose high, but sinking fast. Without hesitation, he advanced both engines on the right side to maximum power, his eyes fixed on the altimeter. If it held steady, fine. If not It was passing through 14,000 feet, and it was

not holding—not even with full power—and he said, into the intercom, "Pilot to loadmaster. You read me, Spina?"

"Loud and clear, sir!"

"We've lost two engines. Can't hold altitude. Prepare to jettison cargo. Everything that's not nailed down! Personal gear, cameras, tie-down clamps, chairs!"

"Ah, roger sir," Spina's voice said. "I'm going to de-pressurize now, sir."

Through the desperate pressure, a small cool lift of spirit reached him at the sound of Spina's voice: steady, clear, almost bored back there in the cargo hold. He had him a boy in Spina, a clutch player, a guy you could lean on. Air sucked at his eardrums as the big cargo compartment gave up its pressure like a blown tire. There was a commotion beside him and he twisted briefly and looked. Lieutenant Colonel Sims had been carried aft. Kimball was crouched over his console, head down against the air blast coining through the jagged hole. Airman Cummings was doing something about the hole. He was jamming a large flat slab of aluminum over it—a slab that looked smashed and beat-up as if it had been worked on with an ax. And, as he looked, Comisky realized it had been: the word Lavatory was stenciled on it in blue. It was the door to the plane's john.

"Loadmaster to pilot," Spina's voice said over the intercom. "We've got the cargo doors wide open. The Douglas boys have been helping. We're throwing

out everything we can find. But it's chicken feed. I doubt if it helps. The missile and the transport dolly are really the whole load this trip, sir."

He checked the altimeter. It was down to 11,000 feet and dropping. They weren't going to make it. They weren't even going to come close. At this rate of descent they'd be in the water long before any search-and-rescue planes out of Lajes could hope to reach them. He wet his lips. The phrase, "Stand by to ditch!" was formed in his mind, and he opened his mouth to say it, and then, as the wild scheme came to him, he stopped. *The missile and the dolly*, his mind said, *they're really the whole load*.

When he spoke, his voice was tough and curt: "Pilot to crew. We are not going to ditch. We are going to drop the Thor and the dolly in one piece. We have to move fast—before we lose too much altitude—so listen —"

He laid it out for them then, over the intercom, in about a minute and a half. They rogered. Their voices were thin—or overly loud—depending on how each man reacted to the news of possible sudden death.

"If the wings come off," Comisky said, "it's every man for himself. You'll all have parachutes on. So bail out, and do it quick! Any questions?"

He paused, and the intercom hummed empty.

"All right, Spina. You and the Douglas guys pull off the cargo net and release the floor tie-downs. Then you stand by with the wire cutter to snip the nose cable when I give you the word. O.K.—get with it! Report when ready."

He held back pressure on the yoke, trying to nurse every foot of altitude as long as possible before it slipped away. He'd dropped through 10,000 feet. There was still room for a dive—if Spina and those tech reps worked like lightning and didn't goof. The plan was simple enough, really. The monster Thor missile was cinched to its rubber-tired dolly. If Comisky could build up enough speed in a dive to climb steeply enough—and if he could hold the airplane absolutely steady and straight in a climb

A voice panted in his headset, "Spina, sir. She's all clear. Every last thing off but the nose cable. Standing by

to cut her, sir. Got my safety harness on Got the
rope cutter tied to my arm so I can't lose her "

"Good boy, Spina. Everybody ready now?"

They rogered in a frantic rush. They were ready. As ready as they ever would be.

"O.K.," Comisky said, and now, finally, a tough tight grin played on his mouth. "Hold your, hats, kiddies. Here comes the big dip."

He pulled power off his two remaining engines and eased the nose down—trimming to take the pressure out of the yoke—and watched the air speed slowly rise— 230 ... 240 .. 250. ... The plane was diving shal-lowly—but losing precious altitude at a sickening rate. He had to gamble—had to risk losing the wings on the pullout—if he hoped to build up enough speed for the maneuver he had in mind. He pushed the yoke hard forward. The sea tilted.

The horizon was gone and he was plunging steeply down toward a solid blue-black wall.

Comisky slitted his eyes against the fierce turbulence in the cockpit as jets of air hosed past Cummings' makeshift patch. He abandoned the instruments. He stared at the sea. It had lost its solid tone and was taking on a texture—a delicate tracery of ripples, as a breeze gently rippled the sea surface. Now he began to move the yoke back. The big plane's nose mushed on downward for an instant, and then, with nightmare deliberateness, it began to rise and there was a savage shuddering as the long thin wing—built for conservative cruising at high altitude—fought for its life against the wrenching, ripping forces of a dive-bomber pull-out.

Comisky gave the wing every chance he could. He used every foot of altitude he dared in rounding out from the dive. The C-133 was under 200 feet, almost brushing the water, it seemed, before it came straight and level. He slammed the two good throttles against the firewall and heard the blessed explosive screech of max power from his right wing.

Comisky eased the big plane's nose upward. The sea vanished. The horizon slipped past. All he could see was the light blue sky. He steepened the climb as much as he dared to give the rubber-tired dolly a quick and positive exit, then said sharply, "Cut it, Spina! Cut it, boy! Quick!"

For an instant nothing happened. Then Comisky felt a heavy lurch, the control column shook, and he heard a dull impact in the rear, as the airplane began to roll toward the left. He met the roll with full aileron, saw he wasn't going to be able to control it—and then the C-133 shook itself like a dog getting rid of a cat on its back, and Comisky floated up in his safety belt, light as a soap bubble, and Nick Spina's voice yelled, fierce and happy, "She's gone! She's gone, skipper! You got it made!"

He didn't have it made. Not right then. The Thor missile and its rubber-tired dolly were gone, falling toward the distant sea. But the C-133 was hanging, nose-high, on the very brink of eternity. Comisky jammed the yoke full forward, even leaned forward, straining against his seat belt—as if it would make the slightest difference—tense for the stonelike drop of the nose which would mean the plane had stalled and was starting its helpless death plunge into the sea.

The nose held high for a small eternity. The whole plane shuddered. Deliberately, then, Comisky steepened his bank to relieve negative gravity—to keep those last two precious engines from flaming out. The nose came down heavily, awkward and wallowing—but flying—and Comisky eased into safe and stable flight.

"Pilot to navigator," he panted. "You read me, Kimball?"

"Right!"

"Give me a heading for the Azores. And send out a radio request for rescue planes to meet us on the way in—in case these two engines conk out."

"Yes, sir!"

Comisky looked at the altimeter. It was holding steady. No, it was doing better—it was climbing, very slowly. He reached over to the throttle quadrant and eased the two live throttles backward, very slightly, and the knife-sharp edge of fury went out of the engine sound.

It was night. Lt. Col. Harry Sims was propped up in bed in the U.S.A.F. hospital on top of the hill overlooking Lajes Field, in the Azores. His head was wrapped solidly with bandages and the right side of his face was covered with bright red antiseptic. He looked, Comisky thought, like a slightly beat-up swami after a bad day at the county fair. Around Pappy's bed stood the crew: Kimball, Diffenbaugh, Cummings and little Nick Spina. They were grinning. Even Pappy, in a lop-sided, doped-up way, was grinning. They had told him the story. How they had dropped the Thor. How they had come in on two engines. How Comisky, with Kimball pinch-hitting as copilot, had got the big bird on the deck in one piece. It was the staying in one piece which was the miracle of the thing. The C-133 had popped its rivets, split its seams, even bent some of the basic interior structure.

"We got big plans for the old lady, sir," Nick Spina said to his aircraft commander, grinning. "After today we figure she's wasting her time carrying freight. She oughta be a fighter-bomber."

The nurse on duty said, worriedly, "You gentlemen will have to leave now. Colonel Sims has lost a great deal of blood and he has a broken shoulder. You wouldn't be here at all if he hadn't insisted on seeing you."

"O.K., nurse," Major Kimball said then. "Just one more minute. I've got a word to say to Captain Comisky." Kimball turned and looked at Comisky, grinning. "I just wanted to say, Comisky, that I was dead wrong about fighter jockeys. You guys are utterly nuts, of course. But I'm glad you are. None of us would be in this room now —and we all know it—if you hadn't pulled that insane stunt back there."

Comisky looked around the group. They were all watching him and they were smiling. This was the point, in all the stories, where the newcomer always had his big change of heart—where he was suddenly overcome by the joy of being accepted, of being part of the team— and felt his mere personal desires fade away before the bigger symbols of Duty and the Common Good.

Maybe that was how it happened in stories, but it was not happening to Frank Comisky now. Nothing at all was happening. He stood there—and then, from the darkness below, there came a soft hissing sound which built into a sharp whine. Comisky turned to the window and looked out. A jet fighter had fired up. It was taxiing out toward the take-off position, and as it passed through a swatch of light thrown out by a hangar door, Comisky saw that it was a North American F-100 Super Sabre. It carried droptanks, which probably meant it was on its way overseas to join some fighter outfit on the continent or in Africa.

The F-100 wasted no time at the end of the runway. It angled off the feeder

strip, centered itself and began to roll with a high and steely scream. Comisky saw the bright explosion of the afterburner, saw the Sabre jump forward and streak along the runway in the dark and lift, like a low, orange rocket, over the black fields of the Azores. His hands were two tight fists. When he turned to the room, Lieutenant Colonel { Jims was watching him.

"Comisky."

"Yes, sir?"

"I guess the nurse is right. I guess you guys better leave. I'm getting a little woozy in the head. But I want to say something before you go. I'm recommending you for the Distinguished Flying Cross, Comisky. The D.F.C. is tough to get in peacetime, and the request may be turned down, but I think you rate it, and we'll try." Sims wet his lips. "One more thing. I'm also recommending that you be taken off transport flying. No M.A.T.S. pilot in his right mind would have tried that fool trick you pulled this afternoon. We might as well face it, Comisky. You've got the wrong temperament for big planes. I'm afraid you'll just have to go back to fighters."

For an instant, Comisky could not speak. He met Sims' eyes. Sims was grinning, lopsidedly, and as Comisky watched, the skipper's left eyelid dropped in an unmistakable wink. He turned to the nurse. "All right, honey. Get rid of 'em. All of 'em. They're nice guys, but they're disturbing my sleep. And sleep, right now, I need. Say about forty-eight hours of it—for a starter."

Jinx Jet

Johnny Howard and Liz Talbot stood in the Mojave desert outside the J. M. Mathieson Experimental Test Hangar, watching Rudy's contrail pencil itself slowly across the violet sky. Rudy was Liz's brother. He was up there now in the XF-8, a long skinny needle with a microscopic pair of wings, which Doc Henry had designed for 2,500 miles an hour. The test gang called it Henry's Hatpin. It had two power sources—jet and rocket.

Rudy had pushed it past 1,500 mph with the jet. This afternoon he was going to shove it to the limit with rockets, and if it didn't burn up by the heat of friction, old J. M. Mathieson could knock the X off the front and put the Hatpin in production. This J. M. needed to do. He'd sunk a pot of money in the jet tanker competition, which Boeing had won. But everybody said he had a winner in the eight. If Rudy Talbot went 2,500 miles an hour this afternoon, the Hatpin was in like Flynn.

From inside the hangar a radio speaker hummed and a voice said, "Hello Mathieson tower. This is Rudy Talbot at 58,000. Is the field clear for test?" As the tower said it was, Johnny Howard glanced sideways at Liz Talbot. She was Rudy's sister all right. She had Rudy's determined chin and hot blue eyes that looked straight into any eyes they met. There the likeness stopped. Liz had her own mouth, full and ripe, a pert nose dusted with freckles, and her hair was done in a little furcap effect. Right now she wore a baseball cap, a short-sleeved shirt, skirt, and high-heeled pumps that had once been white. Now they were filmed with desert dust and her legs were bare and brown and good to look at. Several times, in Los Angeles, people had mistaken Liz for Ann Francis, the young movie star.

Johnny Howard said, "Let's get in out of the sun, Liz."

He didn't mind the sun. His face was tanned from sitting up there in the XF-8 on days when Rudy let him take the swing shift. Johnny just wanted Liz inside. Nothing was going to happen, of course, but he wanted her inside.

Liz said suddenly, "It's gone."

Johnny looked. The con had broken off short. The sky was empty and silent. He squinted to pick up the diving fighter, but didn't see it until it started trailing brown smoke, a viciously down-driven speck above the purple mountains. The speck plunged past the skyline and lost itself in the heat-shimmer of the Mojave.

"Talbot to test," Rudy's voice said matter-of-factly, over the radio. "I'm cutting the jet now."

Johnny heard the jet a moment longer, then it cut off and he saw the XF-8, very low, flash in over the field boundary. It moved in total silence, so close Johnny could see the crimson smudge of Rudy's crash hat inside the tempered-glass canopy. The General Electric J-79 jet engine was shut down. The air intake ducts were tightly closed with heat covers.

Rudy's voice said, "Okay test—I'm going to fire rockets."

There was an instant of silence, then a long torch of blinding flame from the Hatpin's tail and an explosive blast that shook the windows. The fighter went almost straight up and vanished in the clear sky. For several seconds nothing happened. The sky was empty. Then, very high, Johnny Howard saw a soundless streamer of orange burble across the blue. He looked at it curiously, wondering what it might be. It took the explosion some time to reach the ground. It came as a sharp, flat sound, small and faraway, like the firing of a 20-mm. cannon.

When Johnny twisted toward Liz, she was looking at the sky. Her lips were slightly parted. She did not scream or faint. Suddenly she put both palms over her eyes, and when Johnny got hold of her he felt her body shaking. He said, "Take it easy. Maybe he ejected."

But Johnny knew Rudy hadn't ejected, even before the Mathieson chase plane radioed he'd gone into the ground with what was left of the XF-8. Rudy hadn't had time to eject. He'd never known what hit him. It was the way jet test pilots usually went.

That night Johnny took Liz for a drive in the desert. She sat quietly beside him, looking straight ahead. When they neared Lancaster, Johnny asked if she'd like to stop for a drink. She said no. After awhile, she began crying, and Johnny was relieved. If she could cry it out, she could get rid of it. Johnny wished he could cry himself. In addition to the fact that Rudy Talbot would have been Johnny's brother-in-law—he was the best friend Johnny had ever had.

"Rudy was a test pilot," Johnny said. "What happened today is what every test pilot has to consider, every morning when he comes to work."

"I know," Liz said.

"Every guy who does a job has something," Johnny said. "Even the guys who punch time clocks and shuffle papers. They don't go quick. They do it by inches. Personally, if I had a choice, I'd take the way Rudy took this afternoon."

That was when Liz handed back the diamond. She didn't make the usual storybook speech giving him the choice between flying and the girl. She said, as a matter of fact, that she wouldn't respect him if he quit flying. Particularly now. Particularly the XF-8. Liz worked for J. M. Mathieson. She knew how badly J. M. needed it.

"I want kids when I get married," Liz said. "I want a father around while they grow up. I couldn't take another thing like today—not with kids."

Johnny didn't say anything, because she was right. Take the past year:

George Welch in the North American F-100 . . . Jim Verdin in the little Douglas attack bomber . . . Dick Richbourg in the Convair Sea Dart—and now, Rudy. Those pilots were the best. If it could happen to them, it could happen to Johnny Howard particularly in the XF-8.

The eight was something new. The slipstick gang had whipped the sound barrier and now they were tackling something worse—the heat barrier. Nobody would ever drive through it. The faster you flew, the hotter it got. Even if you built a plane out of a solid diamond, it would turn into a streak of cosmic dust at Mach 10—7600 miles an hour—if you held speed long enough at low altitude. Doc Henry's Hatpin was built to probe the wall of fire. It had four rocket motors which fired automatically, one at a time, when the switch was closed.

"I'm not giving up," Johnny said. "I'll be asking you again, Liz."

Doc Henry's crew located, mapped, and photographed every part of the wreckage of the XF-8. Sometimes the study of the fallout pattern gave a clue to the trouble when a high-performance plane came unglued in mid-air. The Engineering Department went over the YF-8—sister ship of the plane which had killed Rudy—bolt by bolt. The results of it all came to exactly nothing.

Every noon, Johnny Howard waited outside the Mathie-son Administration Building, where Liz worked, and ate lunch with her in the cafeteria. Every evening he drove her home. He stayed off Rudy's death, and he stayed off marriage. He tried to act as if everything were going to pick up, now, where it had left off—but it didn't. One night he took Liz to a roadhouse and tried to get her to take a drink. Maybe it was wrong. He didn't know. But he did know what could happen when you brooded too long over the dead. His mother had brooded for nearly two years after his father had died. He'd wake up and hear her crying in the night. Finally, Johnny gave it to her. He told her she was selfish, her grief was selfish, and furthermore it was going to put her in a sanatorium if she didn't stop. Johnny's mother had hysterics—but, almost at once, she did stop. It had been a good thing to do.

Johnny ordered a double rye on the rocks when he and Liz reached their booth in the roadhouse. Liz said no thanks, she didn't think she'd drink.

"You used to drink," Johnny said. "You used to enjoy one or two."

Liz didn't answer. Johnny drank his double and ordered another. While it was being brought, Liz said. "Would you please take me home?"

Johnny let his drink down very carefully. "Look," he said softly, "I loved Rudy too."

"I used to think you did."

"You're not feeling sorry for Rudy," Johnny said. "You're feeling sorry for yourself. Frankly, I'm getting tired sitting around watching it."

"Nobody asked you to sit around and watch it."

"That's what I know," Johnny Howard said. "If you're ready, maybe we'd better go."

After Johnny drove Liz home, he went back to the roadhouse and got very

drunk. He was in sad shape the next day, when Doc Henry walked into his office. Doc Henry was a character. He wore a pince nez, a bright bow tie, a loud Hollywood jacket, and was always turning up in the gossip columns with some fluffy little starlet. Doc designed in a crazy way. He'd get an airplane in his head and go into a room and start out with pencils and slipsticks and stress curves, drinking maybe 60 cups of coffee a day, tossing down dexadrine pills like peanuts, getting so witchy you didn't dare phone him. Once, J. M. Mathieson had phoned Doc at a critical point and Doc had jerked the telephone off the wall and thrown it through a window. After an indeterminate time, Doc would emerge from his room looking like a ghost but he'd have something sleek, hot, wonderful, wrapped up under his arm. Then he'd go to Hollywood, get him a babe, and disappear, for a week.

"Hi, Johnny," Doc Henry said, and sat down on Johnny's desk.

Johnny looked at him. Usually Doc was grinning like a cat. He wasn't grinning now. "The Y checks out perfect," he said. "Can't find a damned thing."

"Yeah," Johnny Howard said. "I know."

"The Air Defense Command called up J. M. last night," Doc Henry said. "They want an airplane. They told the old man they'd take the eight if she's de-bugged. If we can't get it de-bugged, they'll take the Hendershot design."

"The eight can do slow rolls around the Hendershot design."

"This I know," Doc Henry said.

"Okay," Johnny said. "Let's get the story."

Doc Henry picked up a pencil and played with it. He did not look at Johnny Howard. "We've got a theory," he said. "We know what killed George Welch in the Super Sabre. High speed yaw. The plane didn't have enough vertical fin. When George tried to roll it too fast, it skidded sideways and the air pressure ripped it to pieces."

Johnny felt a little sick. "You think Rudy got a yaw?"

"Maybe."

"Can't you—check it in the tunnel?"

"There isn't a tunnel built that will hold the eight. It's an air test or nothing." Doc flipped the pencil back on the desk. "I might as well lay it out, Johnny. J. M. dropped three million on the tanker competition. He's got another two million of his own dough in the eight. He's through downtown. They won't give him another nickel, now that Rudy augered in. If the eight flops, Johnny, J. M. Mathieson is finished."

J. M. Mathieson had given Johnny Howard his first test job when he came out of the Marines with no money or future. J. M. had been like a father—a grumpy red-faced old father who yelled at you and then turned down his hearing aid so you couldn't yell back, who sent you checks that made your head swim when you brought in a winner, and then yelled at you when you tried to thank him. But the thing Johnny Howard liked most was the way J. M. always showed up in the locker room before a tough flight. "That parachute,"

J. M. would rasp out, "is for using. Don't hang around to take in the washing if things get sour."

That, you remembered. An x-model was worth its weight in gold. Big airplane companies, in the past, had folded when a nervous test pilot had been too eager about his ripcord.

"Doc—you think a new fin will fix the Y?"

"It fixed the F-one hundred."

"How long will it take to install one?"

"About a week—if we really work at it."

Johnny could hear his heart in his ears. He licked his lips lightly. "All right, Doc. Get working."

Johnny Howard got to the hangar early the day of the test. He walked around the YF-8. Its new tail looked funny. It was bigger, but it had more rake. It looked like the fin of a shark. Johnny made his check very carefully, testing a couple of quick-fasteners with the edge of a quarter. If one of those hatches blew open at 2,500 miles an hour, the wind-of-flight would tear the plane to pieces like the impact of a five-inch shell.

Johnny went into the locker room and the ground crew helped him into his MC-1 high-altitude pressure suit. Up where he'd be flying, the suit was a life-or-death matter. It had a large plastic helmet and an airtight face plate. It was designed with many air-bladders sewn into the heavy cloth, with lacings up the arms and legs. In case Johnny lost cockpit pressure at extreme altitude, the airbladders would automatically inflate and the lacings would clamp down and hold his body like a vise. Above 63,000 feet—without the suit—Johnny's blood would boil in his veins if he got an explosive decompression. He would die in a few seconds.

As soon as he had the suit on, Johnny went out and climbed into the YF-8. He was sweating heavily. He could feel the sweat trickling down from his armpits along his sides, and taste it on his lips. He was very scared. He didn't really believe Doc Henry had the answer in the tail fix. His mind kept seeing that orange ribbon burble across the sky. He wondered how Rudy had felt—just at the instant he started to go. There must have been some small warning, vibration maybe, before the red blast knocked you cold.

After he'd made his cockpit check, Johnny signalled a tug to pull him out of the hangar. It was very hot. The sky overhead was intensely blue. The sun made knife-sharp shadows under the stub wing. Johnny closed his hatch and checked it for locked. He closed his face plate and went on oxygen. He said, in the helmet mike, "Mathie-son Test. Howard in the YF-8. Do you read?"

"Five by five—Johnny."

"Is the area clear for take-off?"

"Edwards and Inyokern are clear. An airliner's letting down for L.A.—but he'll be out of your way by the time you're airborne."

Johnny fired up the J-79. It made a remote rushing sound in his helmet. The cockpit became cooler as the air-conditioning cut in. He taxied along a feeder,

runway and turned onto the main strip. Two parallel stripes of orange paint converged ahead in the shimmering distance. He locked his shoulder harness, locked the nose-wheel, and re-checked his trim settings. His body felt itchy and his mouth was very dry.

"Test Control—am I cleared for take-off?"

"Roger, Johnny. Cleared for take-off. Good luck, boy!"

Johnny pushed the throttle forward. The needle nose of the Hatpin began sluggishly to move forward between the orange guide lines. The jet-scream sharpened, and the runway began to suck under the nose swiftly as the turbojet gathered power out of speed. Johnny waited until the needle hit 150, eased back on the stick, and tucked his wheels to bed. The runway was gone and the bright sage-dotted desert streaked past below.

"Howard to Test. Are the telemetering pickups on?"

"Pickups on!"

"Okay—I'm shutting off the jet."

The falter of the jetscream, and then the eerie silence, pinched his stomach—even though he knew he had rockets. He punched the heat-door button, and felt the plane slip forward slightly as the duct-drag was eliminated by the streamlined covers.

"Hold your hats, kiddies," Johnny said inside his helmet. "Here comes the big dip!"

He flipped the red safety cover off the rocket switch and pushed it to "ON." The reaction was instant. There was a shattering explosion and a violent impact, like a collision in traffic. His head snapped back and his body flattened against the seat, and he felt the flesh crawling away from under his eyes, his lips stretching at the corners, and the instrument panel distorted like something under water as his eye balls were squeezed out of round by the acceleration forces. For a time he hung on the edge of consciousness, feeling as if strong hands were tearing the flesh and muscles and nerves away from his bones.

Then, smoothly, the tons of pressure that had pinned him to the seat began to disappear and he could see again. The earth was very far below, changing shape and color in an eerie manner, like movies of a plant growing, and when he looked at the Mach meter he couldn't get a reading. The white needle must have gone off the dial and broken. It hung loosely at Mach. 6, jiggling impotently.

Then the heat hit him like an open furnace. It seared his hands and filled the cockpit with a terrible invisible pressure. He reacted instantly. He pulled back on the stick to take the YF-8 straight up into the bitter cold of space—his only hope.

For an instant the plane mushed, then it turned steeply up, blacking him out. He could not see but his brain was awake, and he screamed in agony, and then he could see again. The needle nose of the Hatpin was cherry red against the blue velvet sky. The heat made a pale rose-colored reflection on the inner

surface of the thick tempered glass. As Johnny watched, a hairline crack flickered like miniature lightning across the rosy sheen, and the cockpit blew up in a dull roar of haze.

Explosive decompression! he thought. *This is it. . .*

Air blasted from the cockpit like a blown-out tire, the MC-1 pressure suit grabbed his body like a million biting pliers, and he felt the plane slowing on top of its fantastic skyrocket climb. He glanced at the altimeter. It stood at 156,000 feet. The airplane stopped climbing, held a moment stationary, and fell back tail first. There was no air to effect the controls. The Hatpin simply tumbled back toward the earth like a rock. The pressure suit punched air into Johnny's lungs. He forced it out. The suit shoved it in. It was like doing pushups. The velvet sky was gone. The searing heat was gone. In its place was the bitter cold of extreme altitude which could freeze oil, make plastic brittle as glass. The cold—suddenly striking the red-hot windshield—had cracked it and caused the explosive decompression. Below, Johnny saw the earth spread out like a map in an Atlas, California a pale luminous beige against the black face of the Pacific ocean, turning lazily in a looping motion, overhead, underneath, overhead, underneath.

He began to try to fly, out of the reflex action of early training: forward stick, pick up flying speed, ease back. . . The tumbling plane met the earth's air envelope as it fell lower. The loose controls firmed up. The world stopped looping and held steady, and Johnny was diving at fantastic speed toward the copper bowl of the Mojave desert.

He punched the duct-cover buttons, heard the servos grind, and saw the "all clear" tabs rise in the indicators. He went through his air restart procedure and felt a stab of fierce relief when the turbojet cut back in. Good old GE. They gave you power when you needed power. He could make a normal landing now—if something didn't fall apart, and the cracked windshield didn't blow up in his face.

He made a wide bank across the San Gabriel range, let down over Pear Blossom Summit, and saw the Mathieson facility, toy-like, ahead of him. "Clear the field," his voice said fuzzily. "Emergency. Clear the field. . ."

He was low over the sage. He dropped his wheels, brought the nose up, but he was blurry and the orange guide line snaked as he tried to set down between them. He felt the plane hit very hard, porpoise, and begin to hunt. He chopped throtde and rode the brakes and rudders with everything he had left.

Then he was stopped. He raised one hand and looked at it as if through a curtain. The hand was bright red, as if it had been boiled, and the palm and fingers were raw. The skin had wrinkled and slid off the meat like the skin of an over-ripe plum. Somewhere, behind the curtain, there was a metallic twisting sound and a voice said, "Johnny. Johnny—you okay, boy?"

Johnny grinned into the curtain. "Sure," he said. "I'm fine."

Then he fainted.

Johnny was in a hospital room. It was night and he felt very weak. His

hands had been treated with gentian violet and bandaged, and the doctor had given him a shot of morphine and several shots of penicillin. He lay on his back, feeling a warm pressure in his burned hands, but no real pain. A door across the room opened and a nurse came in. His heart jumped. Behind the nurse was J. M. Mathieson's red face, and behind J. M. was Liz Talbot.

"You can't stay long," the nurse said. "Mr. Howard is in shock."

"Mr. Howard is fine," Johnny said, but it felt as if he had Kleenex stuck to his tongue. "Come in."

J. M. approached the bed. "How's it going, Johnny?"

Johnny looked at his bandaged hands. "That so-called cooling system of Doc Henry's couldn't freeze an ice cube!"

"Doc's cooler saved your life," J. M. said. "But Doc was wrong about the tail needing fixing. It wasn't a new tail we needed. It was a new rocket relay. The thing shorted out and fired all four rockets simultaneously—instead of one by one, as it was supposed to do. Test Control monitored you at 3380 miles an hour shortly after you closed the firing switch. If it hadn't been for Doc Henry's cooler—and that quick pullup you made—you'd probably have bought the farm."

Johnny said, "How about my hands?"

"You got a dose. You won't fly for quite awhile. But you'll keep them." J. M. Mathieson's face broke into a grin. "If it's any consolation to you, Johnny, you saved Mathieson Aviation from becoming the property of the First National Bank of Los Angeles. Colonel Harris of the Air Defense Command had me on the horn about twenty minutes ago. The Colonel was out there today. He saw the flight. He knows about the thirty-three eighty miles an hour, and he knows we can fix a firing relay as easy as peeling a grape. The Air Force wants our airplane, Johnny. 'A billion dollars worth by next Tuesday morning,' was the way Colonel Harris put it."

Johnny looked at Liz Talbot. She'd never seemed more like her brother Rudy. The chin stuck out and there was a hot brightness in the eyes. He said, "Hi, Liz."

She said, "I was out there today, too. I was sure you'd be killed, but I couldn't stay away."

Johnny Howard was silent. He was crazy about Liz, but he didn't speak. He'd known guys in flight test whose wives flew co-pilot on every mission. It didn't work.

Liz said, "You still want me, Johnny?"

He said, "I'm a test pilot. I'll be a test pilot 'til they jerk my card."

"I know that."

"Can you take it?"

Liz smiled slightly. "It's not a question of whether I can take it. I'm stuck with it. I found that out today, Johnny. If you're going to scare me to death from nine to five—you might as well love me a little at night. . ."

Johnny realized that old J. M. Mathieson had left the room. The nurse stood

by the door looking as if she'd sucked a lemon. Johnny said, "Nurse—would you go get me a glass of water?"

The nurse frowned. Then, reluctantly, she smiled. "I guess you aren't quite as deeply in shock as the doctor suspected—Mr. Howard. But I'll get the water."

"Thanks nurse," Johnny Howard said. "And let it run awhile—like ten or twenty minutes—so it's good and cold."

Johnny looked at Liz. Her lips were open a little as she breathed and she looked straight back at him. He realized that she did bear a close resemblance to Ann Francis, the young movie star. Only prettier. Much prettier. But then, of course, maybe Johnny Howard was prejudiced.

100 Miles Up

When Tony Revere stepped into the conference room of Dillingham Aviation Company, and got a look at Colonel Jim Coy's face, he knew it was going to be rough. Colonel Coy was Air Force liaison officer on the X-17 rocket plane—a grim little guy with a chestful of ribbons, who was never happy, even when things were going great. When things were going badly—and from Coy's expression they were going badly right now—he could be as nasty as anybody Tony Revere had ever had to deal with.

But Colonel Coy didn't fire the gun this morning. J. T. Dillingham, president of the company, fired it.

"Tony," J. T. said, "I've got some bad news. Very bad. Dave Silk just quit."

Tony Revere was smoking a cigar. He took it out of his mouth and stubbed it in an ash tray, looking at Dave Silk's empty chair at the conference table, and he could feel his body tightening all over, like the coiling down of a heavy spring. Dave Silk was project pilot for the X-17, the rocket plane the Air Force was counting on to gather heat data for its intercontinental ballistic missiles. Those ICBMs would slash down out of space into the earth's air blanket at thousands of miles an hour. Unless their nose cones could withstand the savage temperatures developed by the friction of the air, the warheads would disintegrate or explode long before they reached the target.

The X-17 was designed to zoom up to five hundred thousand feet—a hundred miles out in space—then, turn around and come screaming back in at a fantastic speed, with a man in it, gathering heat data as it came. Up to now this job had been handled by huge, unmanned missiles at a million dollars a shot, and the results had not been satisfactory. Sometimes the big rockets blew up on take-off or wandered off in a drunken parabola, and even at best, the method was slow and expensive.

There was, of course, one great drawback with the X-17. It was fitted with a cockpit cooling system which could chill a thirty-story apartment house on a blistering July day, and a thrust reverser which slowed it like a sky hook. But flying a hundred miles straight up was no piece of cake. Tony Revere hadn't tried to minimize the danger when he interviewed Dave Silk. But Silk hadn't seemed scared. As a matter of fact, he'd seemed eager, so Tony had hired him. He was Tony's boy.

"Look, J. T.," Tony said now. "I drove Dave Silk into Apple Valley last night. He didn't make a peep. Are you sure there isn't some mistake?"

"No mistake," Colonel Coy said curtly. "We had Silk right here in this room

ten minutes ago. He quit, all right. He's probably in that red Jaguar of his, headed for Sunset Boulevard at this moment."

"It was money, Tony," J. T. Dillingham said. "Dave wanted more money. He wanted a two-hundred-thousand-dollar bonus to fly the high-altitude test."

Colonel Coy laughed in the nasty way he had. "Oh come on, J. T. Let's not play games. It wasn't money. It was guts. I knew Silk couldn't hack this mission the first day I laid eyes on him. I tried to tell you people, but..."

But Tony Revere wouldn't listen, Tony thought. Go ahead and say it, Colonel. Tony Revere, vice-president in charge of production, was too bullheaded to take your advice.

"I can even tell you the exact point when Silk began to turn chicken," Colonel Coy said, in his flat, rather husky voice. "It was when old Dr. Strughold began to brief him on the dangers of outer, space: meteors, gamma rays, heavy particles, ultraviolet bums . . ."

"Well, Colonel," Tony Revere said, "it's not exactly a picnic."

Of course, it's no picnic!" Coy said harshly. "Nobody ever said it was! But your boy SUK was so busy adjusting his yellow scarf for the TV cameras that he didn't realize it until now." Colonel Coy paused and looked deliberately around the table. "Now," he said, "it may be too late. Silk was ready to make the five-hundred-thou-sand-foot test this week. It took him a year to get ready — but if he'd had the guts, he could have gone. I'll be frank. The Air Force can't wait another year while Dillingham aviation checks out a new Dave Silk. This missile program won't wait."

"Colonel Coy." It was Major Clark Jennings, one of the chase pilots, who spoke.

"Yes, Jennings?"

"I've got two thousand hours in jet fighters, sir. I'd like to volunteer for the X-17 on a crash checkout basis."

"Had any rocket time, Jennings?"

"No, sir."

Colonel Coy shook his head. "Last summer," he said, "Captain Milburn Apt was killed in his first powered flight in the Bell X-2 rocket plane. There's no substitute for rocket time, Major Jennings. And you can't get it quick or cheap."

Rocket time, Tony Revere thought.

A soft pressure enveloped his heart and his fingers tightened in his palms. He wet his lips, but he did not speak. There was one man in this room who had rocket time: fourteen powered flights in the Navy Meteor at Edwards Flight Test Center in 1950. His name was Tony Revere, now fifty years old, now vice-president of Dillingham Aviation, rusty in his flying, soft as mush—but with rocket time.

"The only pilot who could jump into the X-17 in a hurry," Colonel Coy went on, "is Pete Everest. Pete flew the X-2 before Mel Apt did. But Pete's leading an F-100 outfit in Germany at the moment."

Tony Revere said, "It won't be necessary to get Everest, Colonel. I'll fly that five-hundred-thousand-foot mission myself."

In the sudden stillness he could hear the air-conditioning ducts humming and see Colonel Coy's flat, fighter-pilot's eyes watching him, and the two chase pilots, Jennings and Fox, looking at him as if they had never really seen him before.

And then J. T. Dillingham said, "That's crazy, Tony. You're fifty. And the X-17 is not an old man's airplane."

"I know I'm fifty," Tony said. "And I know what the X-17 is. But do you have a better suggestion?"

J. T. Dillingham looked down at the table. Tony Revere knew that the big boss had five million dollars of his own money, over and above the Air Force appropriation, tied up in the X-17. The Air Force wanted a plane to probe the heat barrier, but J. T. had additional plans. He had in mind a rocket transport which could broad-jump across the Atlantic Ocean, a hundred miles up in the wild black yonder, in less than half an hour. Tony watched J. T. J. T. did not look up.

"How about you, Colonel?" Tony said. "Do I have the Air Force's blessing?"

"I know about the Navy Meteor at Edwards," Coy said. "I wasn't there, but I heard it was an okay show." He whistled soundlessly through his teeth, not taking his eyes off Tony Revere, then said, "I want a younger pilot, naturally, but I'll have to admit I'm like J. T. I don't know where to find one in a hurry." Coy's fighter-pilot's eyes hardened. "Okay, Revere. You've got the Air Force blessing. But don't drag your feet. We're in a hurry."

When Tony told Lois in the kitchen of their Apple Valley apartment, later that day, she did not faint or threaten to leave him, or do any of the other, things which test pilot's wives were always doing in stories. She looked at him and naggd at her lower lip with her teeth. "Well," she said, "for once I have to agree with that horrible little Colonel What's-his-name. I didn't think Dave Silk would do it, either. He was too pretty." She touched the ice-box. "Would you like a cold beer?"

"I would love a cold beer," Tony said.

"Of course, I think you're out of your mind," Lois said, her back to him, digging for the beer.

"Sure," Tony said.

"I won't sleep for a month."

"Honey," Tony said. "I love you. You know that."

She took out a bottle of beer, uncapped it and handed it to him. She was a slender, blond woman, very pretty—prettier, he thought, than when they were married and he was flying upside-down at air shows to earn hamburgers and beans. It hadn't been aviation that brought them together. Lois said aviation was for the birds. A test pilot, Lois said, was merely a motorcycle boy who had traded his black leather jacket and motorcycle boots for a jet helmet.

There was just one little point. Lois was in love with a test pilot. His name was Tony Revere.

Now, in the kitchen, Lois said, "You know what I wish, Tony? I wish I could fly one of those insane projectiles and you couldn't, and you had to sit here in this apartment while I was up flying at nine million miles a second!

Tony grinned at her. "Honey," he said, "you got a kiss for an old admirer?"

She looked at him wanly, and smiled. "You're hopeless," she said. "But I guess I'm stuck with you."

The X-17 was a long needle of stainless steel with razor blades for wings. On its nose was the all-important gadget the Air Force wanted to test. Tony called it the "bug deflector" but it was not intended to ward off cosmic bugs. It was a heat deflector, really: a knob of ceramic material almost as hard as diamond, which could glow like the sun if it got hot enough, but not melt or vaporize. It really did work like a bug deflector. It would punch a cool hole in the lower atmosphere around the earth, so that a big ICBM could sneak through without blowing up from the heat of the friction.

Tony did not have to study the X-17. He knew it by heart. It had a conventional jet engine and controls for flying below seventy thousand feet. Out in space, of course, conventional power, and controls would be useless. There would be no air to feed the motor or to react on the ailerons, elevators and rudder. So the X-17 had a separate set of controls and power for outer space. It carried a liquid oxygen and boron—fuel which made mere gasoline seem weak as water—and the plane was guided like an ICBM. The rocket motor swiveled inside the tailpipe in response to the directional control in the cockpit. Finally, there was a speed brake—a clam-shell device which sprouted out of the fuselage and locked in place behind the rocket blast, reversing thrust.

Tony went into training like a prize fighter. He cut out alcohol, took regular exercise, and even put his cigars—the hardest act of all—on the top shelf of the china cupboard for the duration. Of course, it was necessary to get back in the groove by flying jets. He went up in a Lockheed F-104 and practiced "weightless flight"—which was possible by pushing over the top of a screaming climb and holding the stick forward. You were on top of a high-speed parabola—the plane's force canceled out gravity—and you floated up into the seat belt like a balloon.

But all of it was necessary. Out in space, when he made his turn back toward the earth, he'd be weightless in the cockpit of the X-17. The X-17 was not fitted with an ejection seat—for a very good reason. If something went wrong a hundred miles above the earth, there was no point in ejecting. You'd be just as dead outside the plane as in it.

After a few days of flying the X-17 at low altitude on jet power, Tony announced he was ready to go high, and they moved the test over to Edwards Right Test Center. At Edwards, Tony would have Rogers Dry Lake—eight miles of sunbaked mud which was smooth as a super, highway—the world's

safest landing field if something went wrong.

Nothing did. The X-17 was tame as a kitten. Tony flew it fifteen hundred miles an hour the first day, on ordinary jet power, and the second day he took off the wraps. He flung the X-17 to a hundred and twenty-five thousand feet, using the exotic fuel, turned her around, and brought her straight down. Then he cut in the thrust diverter to see if it would work.

It was smooth as silk. In the fully closed position, it slowed him as if he'd thrown out a drag chute. He passed through fifty thousand feet and the two chase pilots, Jennings and Clark, closed in with their F-104s.

"Hey, Tony," Clark Jennings, the Marine major drawled over his radio. "See any angels up there?"

"Didn't get high enough," Tony said, grinning at Jennings across the narrow gap.

"Never mind the angels," Cliff Fox's voice said from the other side. "Just put my name on the list to fly that bird. She's the sweetest fighter these old eyes have ever seen."

Tony grinned and eased out of his dive. Those ancient eyes of Cliff Fox's must be all of twenty-seven years old; but you didn't judge age, in this business, by how many years a man had been alive. Cliff Fox had nine Migs. He and Jennings had been hand-picked by the Air Force for this project. They were the best there was.

But the morning of the big test, when Tony crawled into the cockpit of the X-17, the fact that he had two good chase pilots didn't buoy him up much. He adjusted his dark glasses inside his face plate and went over his check list with slow care. He felt old, weak, flabby— even though he'd knocked off twenty pounds and was fitter than he'd been in years. He knew why he felt that way. He was scared. Every test pilot was, before a really dangerous flight. You wouldn't admit it, of course—and you wouldn't back out for anything—but you were scared, all right. If he had a cigar, Tony thought, even if he just held it in his teeth unlighted, it would help.

A voice in his earphones said, "Jennings to X-17. Radio check. How do you read me, Tony?"

"Loud and clear," Tony said.

"You about ready to leap off?"

"About two more minutes, Clark," Tony said. Then he called Cliff Fox. "You all set, Fox?"

"All set," Fox radioed.

Tony was sweating heavily. It was very hot in his pressure suit and face plate, and the Mojave Desert, in the distance, quivered like the open door of a blast furnace. He finished his pre-flight quickly now, and the lox truck disconnected, and he and the chase planes rolled out to the take-off slot. They were using the fifteen-thousand-foot concrete runway and taking off toward the west.

"X-17 to chase," Tony said. "I'm rolling."

He advanced throttle and the X-17 moved sluggishly down the hot runway, and with him, as one plane, rolled the two Lockheed F-104 fighters. He passed the big green-glass hangar and began to peer out of his windscreen toward the highway where Lois would be parked to watch the take-off. He broke ground, sucked up the wheels, and the X-17 surged to four hundred miles an hour in the clean configuration; but he held low. He did not climb. Lois was right, he was a motorcycle boy in a jet hat, walking the fence for his best girl. He went over Lois' convertible at five hundred miles an hour, about thirty feet up, caught a flash of her waving hand, tipped her a salute, then he and the Lockheed fighters went up in the blue like three blazing little bullets.

Tony hit sixty thousand feet in a straight climb, reached the California coast, and flipped the switches which would close his air scoops. He heard the servos grind, felt the scoops thump shut, and cut his jet power. The X-17 moved in silence, like a shell in flight, and his gloved hand moved swiftly along the fuel panel, flicking in the lox and the boron, and now the scream was back, but sharper, almost frightening, like some sort of continuous bomb blast. He was too high to run on the earth's atmosphere. From now on he must use his rocket fuel.

He said, "Revere to chase. I'm headed upstairs. Try to stay under me at all times, if you can."

He moved the throttle to full power. He was over the Pacific. Directly below was the dark face of the sea, and out ahead was a white, opalescent haze line, a kind of horizon of its own, high above the water. He was at Mach 2.8—about eighteen hundred miles an hour—and he eased back on the stick and the haze line fell away and he was looking up into the deep purple of outer space.

The sound of the rocket engine, at full power, began to fade away and presently was lost completely. The engine was wide open, but there was no air to transmit its blast. He was in the utter silence of deep space.

A voice, surprisingly close and warm, spoke in his earphones. "Ground control to X-17. You're doing nicely, Tony. Passing through two hundred thousand now. Prepare to reduce power."

He rogered.

He was looking down at the altimeter when something struck the plane like a shell and flung him viciously into his seat harness. He yelled involuntarily, in pure terror, tense for the sudden blinding flash of disintegration. The plane did not explode. It began to flatten out, at tremendous speed, and a voice in his earphones said sharply, "X-17! You all right? You're off course!"

Tony struggled erect, peering frantically about. "I— took a meteor—I guess .. ."

"Are you in control?"

He didn't answer. The altimeter in front of him stood at four hundred and forty thousand feet. The Mach meter must be cockeyed; it was at 5.8.

"Abort mission," the radio said faintly. "If you have control, turn back."

Frozen, unable to think, he looked out. He was in the middle of night. Below him, the sea curved in a huge, luminous ball striped with bright streaks—various cloud formations—and there was no sight of land.

He co-ordinated—or tried to co-ordinate, his stick and rudder—but the controls seemed to have jammed. And then he realized that stick and rudder would do Mm no good at this altitude. He was not in an airplane now; he was a missile—a missile moving at five thousand miles an hour toward the rim of the world.

Then, quite suddenly, Tony got his wits back. He flicked on the thrust diverter. There was a remote jar in the eerie silence as the clam-shell device locked shut. Then, very abruptly—too abruptly—he gave the X-17 full reverse power. It shuddered violently and tried to get away from him, but he caught it with the switch and got it turned back east, toward the coast of California, and the speed dropped quickly: Mach 5 . . . Mach 4 . . . Mach 3.

Then, just before he got down to the level of the atmosphere, the speed brake seemed to let go, suddenly, and he surged forward. His gaze raked frantically along the panel. The lox gage was on zero. He was out of exotic fuel, and the thrust diverter was inoperative.

A ghostly voice, very remote and weak, said, "X-17 from ground radar. We have you again, Tony. You're about three hundred miles from shore. Do you read?"

He was in the atmosphere now, traveling at terrific speed. He tried to move the stick. It seemed to be locked in concrete. He yanked on it frantically without results and then, through the right side of his canopy, he saw what the matter was. The right wing tip was gone. The meteor had blown it off and had hopelessly jammed the right aileron by locking the stick. And now, nightmarishly, the X-17 began to roll slowly, lazily over on its back, and Tony shouted into his mike, "Ground control! I'm in trouble! Send me chase! Send me chase, quick!" There was no reply. The X-17 rolled over and over and the G-loads became savage. It was no longer possible for Tony to speak or move. The world was a steady alternation of sickening lightness and grinding, crushing weight as the rocket plane tightened its death spiral.

He was down to thirty-eight thousand feet, moving at great speed, and blacked out, when the 104s found him. They'd been keeping under him as best they could, and were within twenty miles when his call for help went out. They had come toward the bright speck on their cockpit radar scopes at fifteen hundred miles an hour, and as they got close to it, Clark Jennings began to peek out of his cockpit for a visual contact.

He would have missed it, except for the X-17's spiral. One of its razor blade wings caught the sun in a bright wink and Jennings' voice said tautly, "Okay, Cliff. One o'clock down. Let's go get him!"

The two fighters plummeted downward together, both pilots staring with terrible intentness into the haze—because if they overshot the crippled X-17, they wouldn't have time to make a second try. It was Jennings, again, who

saw the telltale flash of a wing in the sun. "Got him," Jennings said. "Follow me in." "Rog," Cliff Fox said. "With you, Major!" Major Jennings missed his try. The X-17 twisted over and slipped away from his groping wing as the three planes screamed toward the sea at a thousand miles an hour, yet, in relation to each other, moving almost lazily. Cliff Fox was luckier. He rolled carefully with the crippled rocket ship, through a complete cycle, and then moved in, cold as ice, and stuck his wing under the wing of the X-17. And, quite suddenly, the X-17 was not spiraling. It was in straight and level flight, and Tony Revere was coming slowly out of the dark, full of pain and nausea, unable, as yet, to see or think.

"Bracket!" Cliff Fox snapped. "Other side. Quick!" "Be right there," Major Jennings said. "No sweat."

It was not a new maneuver. It had been used in Korea by two Thunderjet pilots who had brought a buddy safely down from high altitude after he'd passed out from lack of oxygen—by flying on either side of him and holding him up with their wings. It worked now, for Jennings and Fox. The two chase pilots held the X-17 solidly between them, headed inbound. Tony Revere, in the cockpit of the cripple, moved sluggishly, and they began to talk to him over the radio, and even rocked him a little, with their wings.

Finally, when they'd hit the coastline and were over the San Gabriel Mountains, Tony's brain began to function and his eyes came into focus. By the time they were over the Dry Lake, he was sitting up and talking. But he wasn't saying much. Because he had a passenger with him now: death.

Major Jennings said, "Fox, fuel check?"

"Ten minutes. How about you?"

"About the same."

Tony Revere didn't speak. He knew what the score was. The two jets had ten minutes of flying left. After that they'd have to land. Death was very close behind him now. He could almost feel its clammy breath on his neck. There was no chance to eject, and the instant the chase pilots turned him loose, the X-17 would go back into its graveyard spiral.

Major Jennings' voice came to him then, and through his terrible fear, the drawling, almost bored, delivery took him by the throat. "Hello, base control," Major Jennings said. "Get the fire trucks and the ambulance out on the lake. We're going to bring in an airplane piggyback, and slide her on."

It was a deadly business, of course, for to make it work the two chase planes would have to be very low and very slow, and if the slightest thing went wrong—the damaged aileron hung up for a split second—there would be three huge fireballs cartwheeling down the white surface of the dry lake.

Fox and Jennings made the approach from the south, to give them the longest part of the lake for jockeying. They eased down, lower and lower, until they were skimming the smooth, cracked mud with their wing tips. They held the X-17 delicately and precisely between them, until they were about a mile short of the fire trucks, and then Jennings said, "Mark!" and they

slammed their throttles wide open and pulled ahead and held their breath, for if the X-17 dug a wing and cartwheeled, Tony Revere was all through.

The X-17 hit and bounced, turning slightly sideways, but her stubby wings saved her. They didn't dig in. The fuselage banged heavily, cocked at an angle, and began to spin slowly in circles as it skidded toward the frantically maneuvering trucks at two hundred and fifty miles an hour.

And then, in a plume of white dust, the X-17 slid to a stop....

Tony didn't remember getting out of the plane. That part was a blank. He did remember people crowding around him in the furnace heat of the dry lake bed, and the headlong ride in Colonel Coy's staff car over to the locker room to be peeled out of his pressure suit. Coy certainly wasted no time on sticky sentimentality. He gave Tony the bad news immediately, which was perhaps brutal, but was certainly in keeping with his personality.

"I'm sorry, Tony," Coy said, "but I might as well level with you. No pilot in his right mind would take the X-17 out in space after today. Even if we'd let him—which we wouldn't. We knew there were meteors up there. But we didn't know they were thick as hailstones."

"You don't want the X-17?"

"No. We do not."

The door to the locker room opened and J. T. Dillingham came in with a big red-faced two-star general, whom Tony recognized at once as General Hank Burke of the Air Defense Command.

Tony stood up, his knees quivering with reaction from the flight. "Hello, J. T. Hello, General Burke."

The whole thing was screwy. General Burke looked normal enough, but J. T. was grinning as if he'd just stepped out to spade his garden and had hit pure uranium.

"Don't keep the poor fellow in suspense, General," he said. "He looks as if he's standing on a hot griddle."

General Burke, smiling slightly, picked at his chin. "Well, Tony, it's like this. The Air Defense Command has been watching the X-17 for a long time. You've heard of the big economy drive in the Air Force."

Tony made himself smile at the obvious and unpleasant bit of history. He didn't get it.

"The Ballistic Missile Division is not only loaded with dough," General Burke said. "It's the white-headed darling of everybody from President Eisenhower down to my own barber. If BMD asked to put a platinum dome on the Capitol, it'd be done next Thursday. So we just sat back and let the Missile boys spend the bucks on the X-17 and waited to see what they'd come up with. Today we found out."

Burke hesitated, and Tony felt a wild and crazy kind of excitement building up inside.

The general smiled. "I won't tease you any longer, Tony. We like the X-17. It'll kill any bombers or fighters we're likely to meet. And the little rascal will

run down certain kinds of supersonic missiles, the ones with wings. We want it in big production as soon as you fellows can get your lines set up."

"What the general means," said J. T. Dillingham grinning happily, and parodying an ancient Air Force joke, "is that we've got it made."

Tony Revere didn't say anything at all for several moments. Then, "Does anybody happen to have a cigar?" he asked gently. "I haven't had a good cigar in over a month."

Moon Shot

The wash of the surf on Cocoa Beach, Florida, did not lull Maj. Norman Gibney tonight. He had been lying in the hot motel bedroom for three hours with his eyes shut. But he hadn't slept. He hadn't even relaxed. His mind had kept going around, slowly and sickeningly, in a great grooved circle, and when it came to those last terrible seconds of decision, when the Titan intercontinental ballistic missile was rising from its launch pad, his fingers had tightened in his palms until his hands were straining fists.

Forget it, he told himself urgently, angrily. It's done. It's over. Think of something else.

And maybe for a minute or two he did think of something else: his gang back in the Wherry apartment at Carswell Air Force Base, Texas—Helen, Emmy and Hank—the people who depended on him, who looked to him for whatever good or bad would come in the future. They were sure it would be good. Particularly Hank. Hank thought his daddy ran the Titan program at Cape Canaveral, with a little help, from time to time, from a few thousand other people. Helen had said as much on the long-distance phone: "You better hurry up and get home, honey. Or be prepared to fly up the street on your own personal wings. Hank's starting to speak of that big monster you're working on as 'My daddy's Titan.' "

Gibney had laughed, but his lips had been stiff and his eyes, looking at the coin slots of the pay phone, had been bleak. He hadn't mentioned the trouble. Helen couldn't help. No use worrying her. about it now. There'd be time enough later—when he was sent home, or to Thule, Greenland, or God knew where.

Abruptly, Gibney's mind jerked back to the Titan blockhouse, five weeks ago. He was sitting in front of his safety console with the hooded eyepiece of the observation periscope within easy reach. They'd gone through eleven hours of count-down. It was T-zero, the moment before firing.

"Watch it now, Gib," big Wes Kirby's voice said sharply over the intercom. "She's lighting."

There'd been a heartbeat of nothing. Then steam exploded out of the flame bucket in a huge white boil as the Titan's exhaust roared through the jets of cooling water. A sullen muted sound came through ten feet of sand and ten feet of reinforced concrete into the blockhouse. Gibney's gaze flicked along his console. The needles were fine—tilted beautifully in one direction, a perfect "Go reading"—and he ducked back to the scope. The Titan was now at

full fury. The powerful steel arms which held it tightly on the pad, until the boosters could stabilize at max power, were partly blotted out by the glare of the flames. As Gibney watched, the hold-downs flipped free, there was an instant of hesitation, and the three-stage bird began to rise slowly, eerily, as if it were being lifted by an overhead crane. It cleared the concrete pier. A butterfly cloud of fire from the gas generators floated about the vicious white-hot stabs of the boosters.

Then the Titan was gone in a billowing caldron of flame-lit steam and Gibney was back with the needles. They were erect in a neat row, quivering slightly. It was going to be fine—an O.K. shot, a Green Bird, as they said in pad lingo.

Then the azimuth needle went crazy. It veered sharply to the extreme left—held there, quivering like a captive insect—zoomed back to vertical. Gibney hunched close, staring. The needle tilted again to the far left and held as if glued down.

Punch it, his mind screamed. Quick, before it hits the beach.

The rest he analyzed later. The agonizing part—the thing his eyes had seen just as his thumb mashed down irrevocably on the Air-Destruct button. That last thing had been a flick—sudden as light, but distinct as if carved in stone. The azimuth needle had freed itself from the glued-down position and erected in an even line with the rest—meaning that the Titan had cleared its trouble somehow, had turned into a Green Bird, safe to let loose into the starry blackness of outer space. But it hadn't gone there. It had disintegrated forty-five thousand feet in the cloudless sky, buckling and falling, dropping its high-energy exotic fuel in cascades of molten fire that could be seen all over the Cape—all over America, really, because the long-range TV cameras had been grinding.

Gibney hadn't gone to pieces. As a matter of fact, he'd felt almost normal for a little while. Big Wes Kirby, who was his friend as well as Martin's launch director, had talked to him in that easy-going Southern accent, had asked what had happened, what he'd seen. He'd told Wes about the azimuth needle—how it had suddenly reversed—and how he'd thought the missile was going to smash into Cocoa Beach; and West had listened and nodded.

"Funny none of the other consoles showed it," somebody said then. Not a condemnation, actually; just a statement. And he had looked around the blockhouse and it was perfectly quiet and nobody was meeting his eyes. That was when Major Gibney's private nightmare had begun.

Now, in his motel room, he sat up in bed and turned on the lamp. No use reliving the nightmare now. He'd lived it constantly for the past five weeks. There'd been a day—no, two days—when everything had seemed calm. He'd gone to the Cape, and the Martin guys had been great—too great, really. It would have been easier if they'd been rough instead of trying to act as if the air-abort didn't mean anything. It meant something, all right—hundreds and hundreds of hours of sweat and hope for every one of them; and he'd blown

the works in half a second because he'd been too quick—Was panicky the word?—about hitting the red button.

On the morning of the third day an Air Force colonel had arrived from headquarters, Air Research and Development Command—a tall man with pale eyes which did not blink when he looked at Gibney and asked questions. What, exactly, had the needle indication been? . . . A sudden sharp deflection, eh? . . . No, two of them. . . . Was Gibney sure of that? ... He was. ... All right, now what had the duration of the deflections been? ...

Finally, the colonel had said, "Do you know how much that test missile was worth, major?"

"Yes, sir. I've heard them say around two million dollars."

"You heard them correctly," the colonel said. "Look, Gibney, I'm not going to beat around the bush. We're replacing you. It's not a punishment, understand. Anybody can make a mistake."

"But, colonel, sir "

"All right, Gibney. Maybe you saw these needles flutter—or thought you did. That's not the point. This missile program is more important than one man or a thousand men. What we do here in the next months can influence foreign policy, alliances—can swing the balance of power in the free world. I'm sure you understand that, Gibney."

Gibney nodded. He made no further defense—did not mention the Saturdays, Sundays and nights he'd spent out on the launching pad with the Martin gang, learning the details, the tools, trying to make himself expert in every phase of a launch. That didn't matter now. He'd blown up a Green Bird, worth \$2,000,000, before it could give any data they hadn't already taped on previous tests.

With a mark like that on his service record, he'd never make another promotion if he lived to be a hundred. He'd seen old majors before—men who'd goofed somewhere along the line, bitter, red-faced from too much drink, waiting for twenty to get out. He'd seen them sweat, too, when the Air Force had a reduction in force. A major was not immune to the RIF. Norm Gibney knew one personally who'd been flying jets a couple of months back. Now he was an airman first class, checking schedules on the jets he'd flown, saluting the same men who'd saluted him before he lost his oak leaves. They gave you two choices in a RIF: re-enlist as an airman, or get out.

The clock beside the bed showed ten minutes to ten. That was good. Gibney could get up and dress for his last count-down. Not that he was really needed. His replacement, Maj. Dick O'Brien, was thoroughly checked out. Dick was a good man. He could handle the job perfectly alone.

Norm Gibney wasn't kidding himself. He knew why Wes Kirby had asked him to stand by a periscope and be on hand in case the new Safety Officer needed him. Kirby was a friend. He liked Gibney and wanted to give him a chance to be in on the Big One. You couldn't refuse a guy like Wes, even though you'd rather do almost anything than face those guys in the blockhouse

even one more time.

It was cool and clear when Gibney left the motel. Oceanward the sky was dark, except for the sickle edge of a shadowed moon. The main drag of Cocoa Beach—a bumper-to-bumper avalanche of traffic when the Canaveral Caravan got rolling in the morning—was relatively quiet now. Gibney walked to the edge of the road and waited for Maj. Dick O'Brien to pick him up. He felt numb—numb and bitter. He'd be glad when the shot was over and he could pack up and leave this place forever. Even if they transferred him to Thule, Greenland.

But Major, O'Brien, when he picked Gibney up, was both excited and nervous. He'd been on the telephone to the Cape five minutes ago, he said, and it looked good—very good. The Titan was fully checked—all three hundred thousand parts of it—and the warhead was installed inside the nose cone.

"Hydrogen?" Gibney asked.

"Hydrogen," Major O'Brien said, and his voice was hushed, as if he somehow felt that even in the car, rushing through the empty night, ears might be listening. "A full megaton."

"If it bits," Gibney said, "it ought to show."

"It'll show," Major O'Brien said. "It won't be any little pinprick either. They're using those big ROTI cameras—the ones that can photograph detail on a golf ball at ten miles. They'll get a front-page shot that'll make those Sputniks look sick."

They were not the first to reach the launching pad. The place was swarming. The missile had been erected and its handling tower had been rolled back out of the way. It stood alone under the floods, a massive towering shape cinched tightly to the concrete pier by the steel hold-down mechanism. When they parked, Major Gibney saw the staff cars with stars on them—general officers' cars—thick as cabs at a hack stand. This wasn't just one more of those low-power shots down range across the South Atlantic. It was the most powerful shot ever attempted in American rocketry. The Titan was a specially modified four-stage version, using new secret fuel of vastly superior energy. The huge missile would build up velocity as it shed stages, until the hydrogen warhead reached 26,000 miles an hour. The flight path would bend part way around the earth, in a semi-orbit; then run off into space toward the moving moon. Guidance must be nearly perfect. An error of a microscopic .2 degree in path angle could mean a miss. The warhead would vary its speed in space—slowing from 26,000 m.p.h. after leaving the earth, and gaining back some speed as it entered the gravitational pull of the moon. But if all went well, the warhead would impact on the moon about twenty hours after firing.

Big Wes Kirby, the launch director, was sitting at the main control panel in the blockhouse when Gibney and O'Brien entered. He looked at them, but did not see them. He was speaking into his lip mike, and his face, in the cool air-conditioned room, was glistening with sweat. This was the first time a live warhead had ever been fired at the Cape. The warhead wasn't armed now.

That would take place automatically when the final stage separated. But this detail was not wholly reassuring. The warhead was designed to go off on impact. If the Titan got away and headed back in, the destruct would have to be very quick and very certain.

"We are taking a certain risk, of course," the briefing officer had said, when they first heard of the Moon Shot. "But our stakes are the highest. This is no circus stunt. We want to hit the moon first. We want to do it positively, visibly—beyond the power of any propaganda to dispute. A high-yield hydrogen warhead is the best way."

Maj. Dick O'Brien took his place at the safety panel, put on his earphones and mike, and began making his checks. Major, Gibney sat behind him, where he could see the gauges easily, and could also use the periscope. The blockhouse was now fully manned. Engineers sat in rows behind their consoles. In a sound-proofed room, behind double glass, sat the visiting dignitaries: generals, congressmen, presidents of several great corporations.

"Pad to Safety," a familiar voice said over the intercom, which Gibney was monitoring with a set of earphones. "Major. O'Brien, this is Jim Hunter. Do you read me?"

"Loud and clear, Jim," O'Brien's voice said. "Go ahead."

"I have slightly low hydraulic pressure on the right hold-down cylinder. If I can't fix it in a hurry, I may have to call a hold."

"Roger," O'Brien said. "Understand."

Gibney peered into the periscope and turned the lens system to ten magnifications. Jim Hunter and his men, clustered at the base of the four-stage missile, came so close he had the illusion he could reach out and touch them. Hunter had climbed up on the right hold-down arm and was standing on tiptoe, opening an access hatch in the wall of the Titan. Two men were holding his legs, steadying him. He reached into a small, dark recess and did something with a screwdriver. Then he closed the hatch and the men helped him down.

Wes Kirby's voice cut sharply over the intercom, "Launch to Pad! What's the trouble out there, Jim?"

"No trouble now," Jim Hunter's voice said cheerfully. "Had a sticky valve in the hold-down. All she needed was a touch of the screwdriver. We're in business."

The night wore on into the dark predawn. Ash trays filled with mashed butts. Paper cups of coffee were drained and crushed. In the soundproofed room, the generals and congressmen shifted wearily in their padded seats. The count-down was plodding slowly and carefully through its technical labyrinth—through two short holds for minor reasons—and then the sickle moon paled and the sky began to get light. Gibney watched the crimson sun rise out of the sea, and heard the voices on the intercom grow thinner and sharper as the count-down moved out of its humdrum detail and into the last critical items—the tense approach to T-zero.

"T minus eight minutes," Wes Kirby's voice said. "All personnel clear, the launch area!"

Gibney licked his lips. He saw two men scuttle out of the concrete utility room under the massive launching pier, run past the blockhouse and vanish. The missile glittered in the early sunshine like some giant toy. A flock of pelicans, flying in line-astern formation, flapped low along the dunes, stopped flapping as one bird, and soared. It was seven o'clock in the morning.

"T minus six minutes," Wes Kirby said. "O'Brien, check your board for proper indications and report."

Over O'Brien's shoulder, Gibney swept the console carefully. All was well. Needles steady, in line, no problem. O'Brien's voice said tautly, "Roger across the board, Wes."

Kirby did not acknowledge. He wasn't supposed to. In these last moments of the count-down he saved his attention for the big, critical things, the signs of danger. "T minus five minutes," Kirby said. "Cape radars on. Master telemeters on." The sites rogered in. Gibney waited. Presently Kirby spoke again, "T minus four minutes. I'm starting the firing sequencer now. I say again, I'm starting the firing sequencer now. Stand by for liftoff!"

Gibney saw green dots of light flicker across the big board as the automatic firing mechanism took over. It was out of human hands now. The big board would do the rest, more smoothly, more precisely than the coolest human operator could hope to duplicate.

A voice—sudden, shocking—tore across the intercom, "Safety! Safety! Check the bird! The right hold-down! Quick!"

Gibney ducked to the scope. The right hold-down arm was on his side of the missile. He stared at it. It was a steel bar eight feet long. It was supposed to be tightly socketed in a grip hole in the wall of the Titan. A moment ago it had been. Now it dangled free, loose, inoperative. Unhesitatingly, Gibney reached over O'Brien's shoulder and mashed the Hold Fire button flat.

He spoke into his lip mike, "Gibney to Launch. Right hold-down is inoperative. I'm stopping the lift-off."

Only, nightmarishly, he wasn't. The green lights on the big board had not turned red. The master warning over the automatic sequencer had not begun to glow. The Hold Fire button hadn't worked. The firing sequence was still going on.

"Safety to Launch!" Gibney snapped. "Stopcock it, Wes! My button's out! Use the emergency over-ride, quick!"

He twisted. Wes Kirby was standing up, scrabbling frantically at a panel which was a mass of electric fire and swirling smoke. A short. A big one. Wes had no emergency over-ride. Everything was gone, including the destruct button—and that big H-bomb was cooking out there with one hold-down completely free. In four minutes—in less—those main-stage rockets would cut in and shove the bird off. Not straight up toward the safety of outer space. At an angle—toward Jacksonville, New York—God knew where—with a

punch equal to 1,000 tons of T.N.T. that could trigger automatically in flight.

Somebody screamed—a high, terrified sound, like a woman. Gibney whirled, ran through the white, shocked faces at the consoles, and wrenched the handle of the steel blockhouse door. The metal fingers which dogged it tight all around retracted with oily clicks. He crouched low and slung his weight against the door, inched it open ponderously, like a bank vault on its ball-bearing hinges, and slipped through.

The concrete launching pier was seven hundred and fifty feet away. Gibney was forty years old, out of shape. He sprinted across the open area, climbed the steel steps beside the pier, and reached the base of the Titan. The loose arm hung back in the air many feet above him. Under his feet was the intricate maze of snouts which would, in seconds, hurl high-pressure cooling water into the flame bucket. He was taking air in tortured gulps. His thighs and knees quivered uncontrollably from the furious run.

The tool he needed—had to have—was shaped like a giant wrench. It took him five seconds to locate it inside the locker. It took him another fifteen seconds to shinny up the steel framework to where he could bring the tool into action. Then, in his desperate hurry, he missed the slot.

Below him, something exploded and the air was full of stinging spray: cooling water on. He fought his way higher, gripping the framework with his knees, and jammed the tool in place. The hold-down arm sagged inward. The locking pin inched toward its socket, touched delicately, and refused to enter. Gibney had one chance, and he took it. He let go with his knees and swung into space on the haft of the locking tool, like a man swinging on a horizontal bar. He felt the pin go in hard, with a definite snap, let go his hold and sprawled heavily on the concrete pier.

The boosters ignited as he reached the iron steps. The shock wave hurled him forward, and he fell, tumbling and lurching, grabbing at the railing, buried in molten light and whirling steam. It was the pier itself—a chunk of concrete as big as a warehouse—which saved him. He could not run. Something was wrong with one of his legs. But he could crawl. He made it to the underpass, dragged his body frantically into it and fell flat with his arms over his head.

The main stage of the Titan cut in. The pier quivered. The sound rose until it was no longer sound, but wrenching, pounding agony. The big four-stage bird was holding, was building up to maximum lift-off power. Then, mercifully, the sound was rising away—slowly, in steady, incandescent fury—was lessening minutely—was lessening quickly—was gone—and there was nothing but a ringing roar, in Gibney's head.

Nearly twenty hours later, somewhat before three in the morning, the moon was above the horizon to seaward, a shadowed globe with a sickle edge at its bottom which the Floridians called a South Moon Under. There had been a cloud deck in the evening, but the wind had swept it away, and now the sky was dark and clear, sprinkled with faint stars.

Major Gibney was propped up in a tilting bed on the roof of the hospital at Patrick Air Force Base, twenty miles south of the Cape. His right leg, broken in the fall down the iron steps, was splinted and the flash burns from the Titan exhaust were treated with gentian violet. He had been in severe pain for the last three hours, since the morphine had worn off, but he did not want more morphine now—not until they knew for sure that the moon rocket had missed.

"She's past due," Wes Kirby's voice said beside him in the darkness. "Eight minutes and twelve seconds, to be exact."

"Radar lost it?"

"Two hours ago," Kirby said. "There too much junk flying around out there—meteors, space dust, heaven knows what. When you turn your gain up high enough to track your missile, you bring in a whole howling wilderness of blips."

Gibney took a look through the powerful telescope they'd set up beside his bed. The moon looked awesomely close through the lenses, a huge shadowed globe pocked with dark craters and striated with ridges and mysterious patches. The thin sickle edge was so bright in magnification that it made him squint a little. He was in strong pain now. The burns were on fire and the broken leg throbbed sharply every time his heart beat. He tried to put his mind on something else.

"What caused the hold-down failure, Wes?"

Wes Kirby chuckled. "A twenty-cent hydraulic line," he said. "The little rascal broke and pulled all the pressure out of the locking pin. Then the hydraulic fluid drained down into a main junction box and shorted the whole works. It's real crazy. You rig up five thousand safety checks and one Utile hunk of tubing blows the ball game."

Twenty cents' worth of tubing, Gibney thought. Four minutes of time. They could change a man's life. He could hack it now. He knew that. No problem. No banishment to Thule. No RIF. He closed his eyes. He was very tired.

And then, beside him, Wes Kirby spoke in a tight, almost savage whisper, "Gib—quick—the moon."

He brought it to him, close and clear, through the telescope. A spot, bright and vivid as the sun, had burned itself starkly in the dark lower quadrant of the moon, rather close to the sickle edge. The spot held, pure white, for perhaps ten seconds. Then it faded gradually through yellow and orange, glowed like a dying cigarette ember, and went out. The surface of the moon, riding serenely across the void of space, was dark again.

Destruct Button

"Major Hollowell has four kids," the young Convair engineer said, avoiding Colonel Kelly's flat stare.

"Hollowell had four kids before he took the mission," Colonel Kelly said curtly. "Right, Norton?"

Gene Norton nodded. He looked through the window at the stream of traffic which flowed through Patrick Air Force Base, in Florida, on its way to Cape Canaveral, fifteen miles north. "Major Hollowell didn't try to make excuses, Colonel," he said. "He just said he was flat-out scared—that he couldn't hack it."

Colonel Kelly felt the steel go in. It was thin and cold and so sharp it didn't hurt for an instant. Then he had a feeling like a man who has pulled out of a line of traffic to pass—and finds a big truck roaring down on him. He said, "Well, I guess that doesn't leave us much choice. We'll have to use the backup pilot."

The Convair engineer wet his lips. He was twenty-eight years old, very young to be test conductor on an operation like Roller Coaster, the Air Force's first, cautious, man-in-space venture. But he'd been picked for ability, not age. This blue-eyed youngster, with the toothbrush haircut and flowered sports shirt, was one of the most capable young engineers in American rocketry.

"I'll lay it on the line, Colonel," he said. "I just talked to Dick, and he's eager to go. But Dick Kelly happens to be your son, so I figured you wouldn't want to handle the safety console tomorrow morning. Not that anything is going to happen, but—"

"Knock that stuff off!" John Kelly said harshly. "Of course, nothing is going to happen. And I have every intention of handling safety tomorrow. If every Air Force officer who had a son going on some kind of dangerous mission went home in a panic and hid under the bed, we'd be a pretty sorry outfit. Right?"

The Convair engineer stood up. "Right, Colonel. Sorry to bother you. I just thought—well, I've got a million things to attend to, so I guess—"

"Norton."

"Yes?"

"Scrub my last transmission, will you? I'm sorry."

The engineer grinned. "Forget it, Colonel. I know exactly how you must feel. But don't worry. It's not as if Dick were going completely around the

world on this trip. He's just going up to altitude and right back down. The whole trip shouldn't take more than half an hour."

"Dick still in your office?"

"I think so."

"Tell him to stop and see me, will you?"

"Glad to, Colonel."

When Norton left, John Kelly lit a cigarette, noting with surprise that his hands were quite steady, and looked at the engineering drawing thumbtacked on the cork board on the wall. It was a conventional Atlas Intercontinental Ballistic Missile, except for the nose cone. The cone in the drawing was not for carrying a hydrogen warhead. It was for carrying a man: tightly strapped; painstakingly protected against cold, heat, G-loads, vibration and a hundred other dangers encountered in outer space, a hundred miles above the earth.

Which was exactly how high Dick Kelly would go tomorrow. He would rise like a man on a giant roller coaster—to 500,000 feet—then he would plunge back down toward the Bahama islands, two hundred miles away, in a tiny ingenious capsule. A beryllium shield would protect him from the savage heat of air friction during reentry into the earth's air blanket. A special ribbon-type parachute would deploy at 70,000 feet to slow the capsule below the speed of sound. At 10,000 feet, the big landing chute would blossom and lower the watertight capsule gently into the sea. The capsule was built to float, of course. Within seconds after it landed, a helicopter or a crash boat would be there to open the capsule and pick Dick Kelly up.

They did not anticipate trouble. They had tested this capsule thoroughly over the range, using a dummy instead of a live pilot. They had picked it up less than a mile from impact target point every time, and the dummy wasn't even jolted. But if there *was* trouble, Dick Kelly had an out: he could fire the capsule free of the booster with a special escape rocket provided for this purpose. He could fire the booster electrically—by pushing a button—or manually, if necessary.

Now, at the office door, there was a light tap, and Colonel Kelly said, "Come in!"

His son was taller than he was, and thinner. He had his mother's black hair, clipped skull-close, and his eyes were hot and coal-black. As usual—since the breach had begun to widen between himself and his son—John Kelly's throat tightened slightly. He said, "Hi, Dick. Some news Gene Norton just passed along to me!"

"Yeah, dad. I'm sorry Hollowell couldn't hack it. But it's a break for me—naturally."

"Naturally," John Kelly said. "Care for a cigarette?"

"Thanks."

John Kelly watched his son place the cigarette deftly between his teeth, Air Force fashion, and flick the lighter. The flame lit his left cheek briefly and his father saw the tiny white scars, like pin-pricks, dotting the tanned skin from

just under the eye to the neck. Dick Kelly had got those scars long ago, when he was twelve, running an errand for his father.

It had been a rather special errand. John Kelly had been fishing for striped bass from a sand bar in the mouth of the Halifax River below Daytona Beach. He had tied into a big striper and had fought it on the light tackle for almost an hour. When the line had finally parted, John Kelly had turned to wade back to the sand dunes, five hundred feet away, where his son was looking for shells. But the stretch was no longer the innocent knee-deep shallows it had been. The incoming tide had transformed it into murderous, seething green water, sweeping directly into a pounding cauldron of breakers in which no swimmer could hope to live.

"Dick!" John Kelly had shouted. "Dick! Run to the lighthouse and get one boat! Hurry, son, for God's sake!"

The rising water had covered the sand spit and John Kelly had been waist deep and fighting for footholds in the shifting bottom when his son angled in with the boat for the pickup. The boy had been bloody from head to waist and his breath had come in great, sobbing gasps when John Kelly lunged into the boat and grabbed the oars. John Kelly was strong, but it took all his strength to beat the river's current and the roaring surf. When he finally beached the boat and turned to his son, he found the boy's face and body pincushioned with deep puncture wounds, growing dark through the drying blood. Young Dick, it seemed, had had a choice when he reached the lighthouse dock. He could spend two minutes skirting a thick hedge of Spanish bayonet, or he could go straight through to the boat. Those two minutes, John Kelly figured later, had quite possibly saved his life.

Now, in the office, Dick Kelly said, "Gene said you wanted to speak to me, dad."

"You sat in when I briefed Hollowell on range safety?"

"Yes, sir."

"Then I won't go all through it again. Just one little point. If I tell you to blast your capsule free of the booster, don't bother to acknowledge. Don't waste even a second. Use your safety rocket. That's what it's for."

John Kelly paused. Now was the time to say it—the thing he should have said every time he'd seen his son in these last four years since Dick's marriage to Fran. Now was the time to say that he was sorry for the ridiculous way he'd acted, that he loved them all, Fran, Dick, the kids, and that he was lonely.

John Kelly had been really close to only two people in his life: his dead wife and his only son, Dick. When Fran married Dick, John Kelly had acted like a spoiled brat who'd been robbed of a favorite toy. Except that Dick was no toy. And Fran, sweet and loving as she was, was also human. You could hold a person like Fran at arm's length just so long, and then you didn't have to bother. She stopped trying to reach you. But now, when John Kelly spoke, a mere conventionality came out. He said, "I sure wish you all the luck tomorrow, son. All the luck in the world."

Dick Kelly stood up and thrust out his hand, and his father took it. "Don't worry, dad," Dick Kelly said. "It'll be a piece of cake. See you in Nassau!"

It was four o'clock in the afternoon and the countdown on Roller Coaster was two hours late. There had been a hold at dawn while one of the radar dishes on the Cape was repaired. Around lunch time they'd held again to adjust the impact predictor station at Jupiter Inlet, down the coast from Canaveral. The IP stations were vital. They gave a running picture, second by second, of exactly where the bird would strike if her fuel was cut off at any given moment. Every big missile fired from Cape Canaveral followed a very definite highway in the sky. The boundaries of this highway were called "destruct lines." If a missile headed off course and neared one of those lines, John Kelly had to blow it to flaming bits by remote control, lest it strike some inhabited area.

Now Colonel Kelly sat at his console, earphones on, making final checks with his range crew. A cup of coffee, cold and untouched, stood at his elbow, and there was a cigarette burning in the groove of the ash tray. Colonel Kelly's face looked hard and set, like the face of a fighter as he waits for the bell. Over his headset, a voice said, "I think that knuckle-headed shrimp boat is finally out of range."

Another voice said, "Yeah, he's moving. But we gotta work something out on these shrimp characters. It's bad enough holding a missile. But when you've got a man crammed in it, it's worse!"

John Kelly's hands tightened slowly into fists. He peered at the sky screen—two clock-like dials with black pointers. One pointer showed if the bird was staying on course. The other showed if it was climbing in the proper arc. The pointers had never affected Colonel Kelly before. Now, looking at them, he had a crazy urge to rise quickly from his seat and run out of the room, not speaking to anyone.

On the wall behind him, a public-address system hummed and the talker in the blockhouse four miles away said, "T minus three minutes, and counting."

John Kelly looked at the TV sets mounted over the impact predictor. The reception was nearly perfect. He could see the Adas, alone and monstrous on its launch platform—a great metal cigar sheathed in white frost caused by the intense cold of the liquid oxygen in its tanks. Lox vapor puffed gendy from a vent hole in the monster's nose, like a lazy man puffing a cigarette. A new voice, which Kelly recognized as belonging to Gene Norton, said, "Test conductor to pilot. You all set up there, Dick?"

"I'm fine, Gene," Dick Kelly's voice came back. "How's the bird look from down below?"

"She's a cotton-picking jewel," said Gene Norton. "Luck to you, buddy."

Colonel Kelly squeezed his eyes tight shut, opened them, winked rapidly and, with his right hand, brought the wire cutters up and snipped the safety wire on the red shield which covered the destruct button. He moved with slow

care, being careful not to touch the button. A high-explosive package was now installed in the Atlas. To make that picture on the TV screen vanish in a white blast of fire, all Kelly needed to do was flip the red shield clear and press the button.

"T minus ninety seconds and counting," said the matter-of-fact voice from the Atlas block house.

Kelly spoke into his lip microphone, "Safety officer to Captain Brown. You ready, Russ?"

From his position in the palmetto scrub close to the big missile, Captain Russel Brown said alertly, "I've got my sighting wires right down the middle of the bird. All set for lift-off, Colonel."

"Good. Keep talking when we get first motion."

"Right, Colonel."

Colonel Kelly turned sideways and looked at Captain Tommy Lee on the chair next to him at the console. Lee lifted his left hand, twining his fingers in a lucky cross. It would be Lee's job to follow the impact predictor plot—to follow the missile on its way between the destruct lines on the big screen in front of him. Colonel Kelly would have his hands full with other things during the lift-off.

"T minus fifteen seconds and counting," the talker's voice droned.

Kelly hunched forward.

"Ten," the talker's voice said. "Nine . . . eight . . . seven . . . six . . . five . . . four . . . three . . ."

On the TV screen, Kelly saw the vernier engines, on the flanks of the Atlas, light early—two bright blowtorch jets—and the count went to zero and Russ Brown's voice said, almost prayerfully, "Go, baby, go!"

The Atlas was holding down as Gene Norton stabilized his engines at maximum power. The flame was heavy and the lower part of the missile was obscured with clouds of steam from the cooling water.

"First motion!" Russel Brown's voice said sharply.

In utter silence, the monster rose torpidly from its platform, hung in the air, drifting sideways slightly in the breeze. Then the smoky flame was gone and the sun glare of the main stage engines made the tail so intolerably bright that Colonel Kelly had to slit his eyes against it.

"She looks good," Russel Brown's voice said. "She looks mighty fine. She's climbing my sighting wire like a little angel."

Then the sound hit central control—a hollow guttural roar, like a giant clearing his throat.

"Still climbing the wire," Brown's voice said. "Still doing real fine . . . starting to bend over now . . . starting to program over . . . going green . . . going green . . ."

The hollow roar dwindled and Colonel Kelly saw the white torch of the Atlas bend over on the TV screen, gracefully, almost with dignity, and head toward the Bahama Islands. Over the radio came a soft, horrified whisper,

"No. Oh, *no* . . ." Then Russel Brown's voice said harshly, "She's going red, Colonel Kelly. *She's going red!*"

He saw it on the sky screen. The black pointer swung away from center line—swung south . . . veered rapidly farther south—and everything in John Kelly's body seemed to swell intolerably, and then contract into a terrible burning point. Over his radio he spoke, curt and clear. "Dick! Dick! This is dad. Get out of that thing! Now!"

He peered at the tiny ejection light on his panel. It should go green now—right now—showing Dick had fired his safety rocket and blown himself clear of the swerving booster. The light did not go green. It remained dark and blank.

Beside Kelly at the console, Tommy Lee's voice said, "She's nearing the destruct line, Colonel. She's headed for Miami. Impact point, Miami . . ."

Colonel Kelly's left hand, moving about twelve inches, flipped the fuel cut-off button which would stop those roaring booster engines high over the Atlantic, and his voice was thin as a piece of steel on the radio. "Dick! Son! Leave it! Now! *Now, Dick!*"

"Missile three seconds from destruct line," Tommy Lee's voice said. "Same heading. Impact point, north end of Miami."

Colonel Kelly flipped the red cover off the destruct button, his eyes glaring unblinkingly at the dark eject light. It did not wink to green.

"Two seconds," Lee's voice said sharply. "One second . . ."

Colonel Kelly pressed the destruct button hard, felt it strike bottom on the console, held it, held it steadily down, and a far-off voice said, "This is Jupiter Inlet. Reporting a missile destruct. A definite flash of fire visible through the cloud deck, approximately forty miles off."

Colonel Kelly tore off the headset and smashed it against the console as he whirled away, running, his hands clawing at a door, his feet beating on a passage-way, blindly, through darkness into the dull haze of the afternoon, through parked cars into the palmetto scrub, falling forward into the sand, clutching the sand with spastic hands into tight wads, releasing it, clutching it again. . . . Colonel Kelly was not clear after that. The afternoon was a blur of intolerable things, things no man should have to think of and remember, ever, as long as he lived. He remembered at one point going to a liquor store and buying a bottle and then coming out on the street and smashing it against the side of a building without unscrewing the cap. He remembered sitting on the beach, next to a sand dune. There were many sandpipers skittering in the tidewash, pecking at invisible bits of food. The wind made a rattling sound in the palmettos. He did not know how long he sat there. After a while he walked. From time to time he looked out to sea. The cloud deck was solid overhead, gray and rippled underneath, from horizon to horizon. Presently darkness fell and rain began to whisper among the palmettos on the dunes.

Finally he found himself back in his motel room. He took the telephone off the hook and sat in the light of a lamp. He kept scrubbing his lower lip with

his teeth. He scrubbed it until it was raw, and kept on scrubbing it.

It was quite dark when a car stopped outside in the driveway. Colonel Kelly stiffened, his eyes glaring. He did not want to see anybody now. Nobody. *Nobody.*

There was a quick sound of footsteps and a knock. He sat silent, staring at the door.

Then a voice said, softly, "Dad!"

He took a deep breath. He said, "Fran. Hello, Fran. Come in."

She was wet from the rain and her face was swollen and red from crying and she came to him at once and knelt down beside him and kissed him on the mouth. Then, for the first time since he had been a small boy, John Kelly wept.

Fran held him then, like a mother holding a child, and he heard her voice, gentle and steady, coming to him; he did not understand the words, but presently a kind of uneasy relief came to him. He was quiet.

"Dad?"

"Yes?"

"How'd you like me to make you a cup of coffee?"

"Fran— I did it. / *did it.*"

"Over at our, place," Fran said. "I've got a sitter waiting. Dad— I—we need you."

He got up then. "All right," he said. "I'd like you to make some coffee for me, Fran. Very much."

Colonel Kelly drove, his daughter-in-law sitting beside him, through the town of Cocoa Beach, through Patrick Air Force Base, and on down to the newly built Capehart housing development, where his son had lived. The rain was steady now, and it was necessary to turn on his windshield wipers. Traffic was light until they neared the entrance to the Capehart area, and then, inexplicably, it was very heavy. They had to wait for several minutes before they could turn in. Then they saw that the main street of the development was solidly jammed with traffic, and the sidewalks were full of people in raincoats.

Colonel Kelly stopped the car. a block from the house. "We'll have to walk the rest. I can get the car later."

They had nearly reached the house, pushing through the throng in the rainy darkness, when John Kelly heard somebody say, ". . . off Jupiter Inlet some place. A sports fishing boat made the pickup . . ."

Kelly stopped. He spoke to a pair of shapes in raincoats. "What pickup?"

The raincoats moved close and he made out wet faces, dimly lit by lights from house windows. Then a voice said, "Don't tell me you haven't heard. They picked up Dick Kelly. Some guy in a charter boat, about fifty miles off shore."

Colonel Kelly heard his own voice, low and wooden-sounding, "Was the body—was it badly . . ."

There was a muffled exclamation from the dark, and the voice said, "My God! It's Colonel Kelly." Then, suddenly, the voice changed. It was warm and quick and full of a kind of exultation. "Body, Colonel! I'm not talking about any body! I'm talking about a living guy! Dick's in there now—in the apartment—alive, sir!"

A fierce, thin prickling, like a powerful electric current, swept over John Kelly's flesh. His throat closed tight so he couldn't speak, and he felt suddenly light and empty and very weak.

"Dick had a full electric failure in the capsule," the voice from the dark said. "Way I heard it, he couldn't use his radio. Couldn't even eject in the normal way. Had to fire himself free at the last second with a manual emergency gimmick."

The voice was saying more, but Colonel Kelly was not there to listen. He was running, and Fran was running, bumping into people, through the yard and through the crowd on the porch.

Dick Kelly was sitting on the sofa with Johnny and little Fran on his lap and the room was full of people.

Colonel Kelly stood aside and Fran ran to Dick. He met her on his feet, grabbed her and lifted her up and held her and kissed her, and then he let her down and held the back of her head with his two hands and kissed her.

John Kelly watched them but did not move toward them through the crowded room. It was not the time. Not yet. After this night, there would be plenty of time. All his life, as long as he lived.

Across the room he saw Fran put her mouth close to Dick's ear and speak for a moment, and then they both turned and looked at Colonel Kelly through the crowd. They were both smiling and John Kelly knew that now it was time. He stepped quickly forward.

It was odd. He had never been so tired in his life, but he felt young and strong as a boy.

Missiles and earth satellites command the attention of the world. Already seven pilots have been chosen to train for man's first venture into space. Here are the stories of the Air Force today — of planes that fly at twice the speed of sound, missiles that can hit a target 5,000 miles away, and here are the Air Force technicians and space pioneers who will soon launch a manned satellite into orbit around the Earth!

Frank Harvey is an aviation writer who knows this exciting new field in both its scientific and military aspects. He has visited the launching sites and Air Force laboratories where the conquests of tomorrow are made. And he writes with electric tension of the men whose complex skills are tested every day in the high cold frontiers of space.